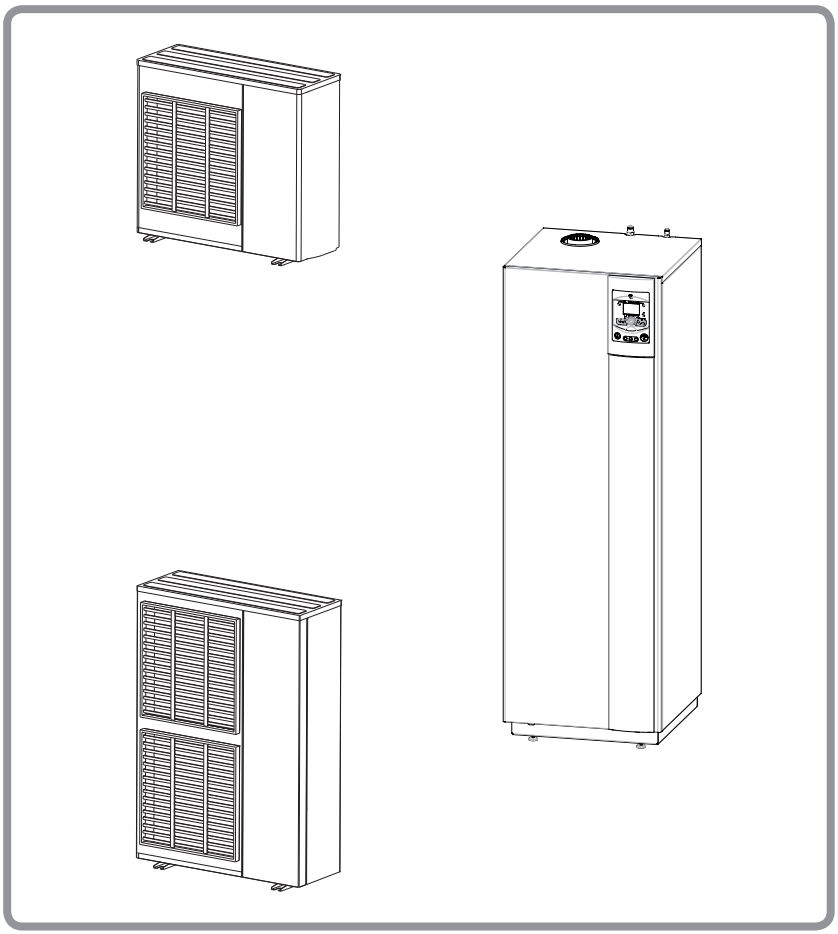
# alféa hybrid duo gas

## Air/water heat pump with integrated gas burner, split, 2 services

| Outdoor unit | | Hydraulic unit | |
|---|---|---|---|
| ☐ | AOYA 30 LBTL | ☒ | 024200 |
| ☐ | AOYA 45 LBTL | | |
| ☐ | AOY 54 LJBYL | | |
| ☐ | WOYK112LCT | | |
| ☐ | WOYK140LCT | | |
| ☐ | WOYK160LCT | | |



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FR | EN

**Installation and commissioning instructions**

**for professionals**

to be kept by the user for future reference

**atlantic-comfort.com**

The specifications of this equipment may be modified without prior notice
Non-contractual document.

**The following are required for the installation of this appliance:**

- ☞ **qualified personnel, certified as capable of handling refrigerating fluids (according to environmental legislation ).**
- ☞ **a heating engineer.**

## Certificate of conformity

**The use of a gas boiler requires a Certificate of Conformity signed by local authorities.**

# Contents


## Presentation of the equipment . . . . . 5

Packaging . . . . . 5
Optional equipment . . . . . 5
Scope . . . . . 5
Definitions . . . . . 5
General characteristics . . . . . 6
Description. . . . . 11
Operating principle . . . . . 13

## Installation . . . . . 15

Installation and maintenance rules . . . . . 15
Unpacking and reserves. . . . . 15
Reception . . . . . 15
Handling . . . . . 15
Containment of refrigerant circuits . . . . . 15
Accessories supplied . . . . . 15
Positioning. . . . . 16
Installing the outdoor unit . . . . . 16
Installation precautions . . . . . 16
Fitting the outdoor unit . . . . . 18
Connecting the condensate evacuation pipe . 18
Installing the hydraulic module . . . . . 19
Room where to install. . . . . 19
Chimney evacuation pipe, B23, B23P. . . . . 20
Chimney connection pipe, B23, B23P. . . . . 20
Room-sealed connection pipe C13, C33, C53 . . . 21
Concentric horizontal room-sealed pipe (C13 type). . . . . 21
Concentric vertical pipe (C33 type) . . . . . 23
Separate air intake and smoke evacuation pipes (C53 type) . . . 23
Refrigerant connections . . . . . 25
Rules and precautions . . . . . 25
Refrigerating connections. . . . . 25
Flaring . . . . . 26
Forming the refrigerant tubes. . . . . 26
Connecting the flare connections. . . . . 26
Filling the installation with gas. . . . . 28
Commissioning procedure . . . . . 28
Sealing test . . . . . 29
Additional charge (outdoor three phase unit) . . . . . 30
Collect the refrigerant fluid in the outdoor unit . . . . . 30
Connecting the heating circuit and the domestic circuit . . . . . 31
General . . . . . 31
Rinsing the installation . . . . . 31
Filling and draining the installation . . . . . 32
Connection to an underfloor heating circuit. . 32
Connection to a fan coil circuit . . . . . 32
Connection to the domestic circuit . . . . . 32
Condensate evacuation . . . . . 32
Gas change . . . . . 33
Connection of the fuel supply . . . . . 33
Electrical connections . . . . . 34
Characteristics of the electrical power supply . 34
General remarks on the electrical connections . 34
Overall view of the electrical connections . . 35
Cross section of the cable and protection rating . 35
Electrical connections on outdoor unit side (single phase model) . . . . . 37
Electrical connections on outdoor unit side (three phase model) . . . . . 37
Electrical connections on the hydraulic module side. . . . . 38
Outdoor sensor . . . . . 40
Ambient sensor and/or central ambient unit. . . . . 40
Installing an ambient sensor . . . . . 40
Installing a central ambient unit . . . . . 40

## Commissioning. . . . . 42

Checks before commissioning. . . . . 42
- Hydraulic circuit: . . . . . 42
- Gas circuit: . . . . . 42
- Electric circuit: . . . . . 42

Commissioning the heat pump . . . . . 42
Starting the gas generator to check the combustion. . 43
- Heating installation with radiators. . . . . 43
- Heating installation with 1 underfloor heating circuit. . . . . 43

Setting the combustion parameters during a gas check . 44
- Heating installation with radiators. . . . . 44
- Heating installation with 1 underfloor heating circuit. . . . . 44

Configuration of the ambient sensor T55 . . . . . 45
Configuration of the central ambient unit (T75 or T78) . 45

## Regulation . . . . . 46

The user interface, the central ambient unit (option) and the ambient sensor (option). . . . . 46
Description of the display . . . . . 48
Water logic. . . . . 48
- Setting . . . . . 48

Regulation parameters . . . . . 50
- General . . . . . 50
- Setting the parameters . . . . . 50
- List of the function lines (settings, diagnosis, state) . . . . . 50

## Electrical wiring diagrams. . . . . 62

## Fault diagnostic . . . . . 67

Fault display on the hydraulic module. . . . . 67
Faults displayed on the outdoor unit single phase model . . . . . 70
Faults displayed on the outdoor unit three phase model. . . . . 71
Display information . . . . . 72

## Servicing of the installation . . . . . 73

Servicing of the gas heat exchanger . . . . . 73
Checking the hydraulic circuit . . . . . 73
Servicing the evacuation pipe . . . . . 74
Servicing the tank . . . . . 74
- Draining the hot water tank . . . . . 74
- Descaling . . . . . 74

Checking the outdoor unit . . . . . 74
Checking the electrical circuit . . . . . 74
Checking the combustion parameters. . . . . 74

## Maintenance . . . . . 75

Draining the hydraulic module. . . . . 75
Directional valve. . . . . 75
ACI check . . . . . 75

## Values to be given to the user. . . . . 75

## Start-up procedure. . . . . 76

Commissioning assistance "check list" . . . . . 76
- Before starting . . . . . 76
- Start-up . . . . . 77

Configuration file. . . . . 78
Technical commissioning instructions . . . . . 79

# 1 Presentation of the equipment

## 1.1 Packaging

• 1 box: Outdoor unit.

• 1 box: Hydraulic module with gas generator and outdoor temperature sensor.

• 1 box: Choice of connection pipe.

| | |
|---|---|
| Concentric... | |
| C13 | ... horizontal turbo pipe (073 224). |
| C33 | ... vertical turbo pipe black (073 226 or 074 031). |
| | ... vertical turbo pipe ocher (073 226 or 074 032). |
| Adaptor... | |
| C53 [1] | Separate pipe adaptor 80 (073 428). |
| B23 [2] B23P [2] | Chimney adaptor 80 (073 295). |

[1] Configuration possible only in boiler room.
[2] For B23 and B23P connection, the chimney adaptors provided must be used.

**Pairing table**

| *Heat pump* | | *Outdoor unit* | | *Hydraulic module* | |
|---|---|---|---|---|---|
| ***Model*** | ***Export code*** | ***Ref.*** | ***Code*** | ***Ref.*** | ***Code*** |
| alféa hybrid duo gas 10 single phase | 522181 | AOYA 30 LBTL | 700730 | MH 3922401 | 024200 |
| alféa hybrid duo gas 13 single phase | 522182 | AOYA 45 LBTL | 700845 | | |
| alféa hybrid duo gas 16 single phase | 522183 | AOY 54 LJBYL | 700054 | | |
| alféa hybrid duo gas 11 three phase | 522184 | WOYK 112 LCT | 700118 | | |
| alféa hybrid duo gas 14 three phase | 522185 | WOYK 140 LCT | 700143 | | |
| alféa hybrid duo gas 16 three phase | 522186 | WOYK 160 LCT | 700163 | | |

## 1.2 Optional equipment

**Optional equipment**

• ***2 circuit kit*** (ref. 074012)
- to connect 2 heating circuits or an under-floor heating circuit.

• ***Class A pump kit*** (ref. 074013)

• ***DHW expansion kit*** (ref. 074026)

• ***Chimney adaptor 80-125*** (ref. 073423).
- for a B23* type connection

• ***Ambient sensor T37*** (ref. 075308),
***Ambient sensor T55*** (ref. 073951)
- to correct the ambient temperature.

• ***Central ambient unit T75*** (ref. 073954),
***Central radio ambient unit T78*** (ref. 074061)
- to correct the ambient temperature and programme the heat pump.

• ***Anti-vibration pads*** (ref. 523574).

• ***White PVC floor support*** (ref. 809532) or
***Black rubber floor support*** (ref. 809536).

## 1.3 Scope

This heat pump allows:

- Heating in winter,
- Control of two heating circuits*,
- Production of domestic hot water,
- The use of gas combustion for additional heating on the coldest days.

* : These options require the use of additional kits (see § "Optional equipment").

## 1.4 Definitions

- Split : The heat pump is formed by two elements (an outdoor unit to be installed outdoors and a hydraulic module to be installed indoors).
- Air/water: The outdoor air is the energy source. This energy is transmitted to the heating water by the heat pump.
- Inverter: The speed of the fan and the compressor are modulated to suit the heat requirements. This technology economises energy and permits operation with single phase power supply, regardless of the power rating of the heat pump, by avoiding high current demands when started.
- COP (coefficient of performance): this is the ratio between the energy transmitted to the heating circuit and the electrical energy consumed.
- Hybrid: the hydraulic module operates with dual energy (air/water heat pump and built in gas boiler).

## 1.5 General characteristics

| Model denomination | alféa hybrid duo gas | | 10 | 13 | 16 | 11 three | 14 three | 16 three |
|---|---|---|---|---|---|---|---|---|
| Gas category | | FR | | | $II_{2Esi3P}$ | | | |
| | CH - CZ - ES - | IT - LT - PT - SK | | | $II_{2H3P}$ | | | |
| | DK - | EE - FI - IT - SE | | | $I_{2H}$ | | | |
| | | LU - DE | | | $I_{2E}$ | | | |
| NOx class | | | | | 5 | | | |
| **Nominal heating performances** (T° outdoor/T° start) | | | | | | | | |
| **Calorific power** | | | | | | | | |
| +7 °C/+35°C - under-floor heating | | kW | 9.75 | 13.20 | 15.50 | 10.80 | 13.50 | 15.17 |
| -7 °C/+35°C - under-floor heating | | kW | 8.10 | 10.30 | 12.15 | 10.80 | 13.00 | 13.50 |
| +7° C/+45°C - LT radiator | | kW | 7.97 | 10.30 | 13.03 | 10.10 | 12.60 | 13.00 |
| -7° C/+45°C - LT radiators | | kW | 6.96 | 9.25 | 10.78 | 10.02 | 12.50 | 13.00 |
| **Absorbed power** | | | | | | | | |
| +7 °C/+35°C - under-floor heating | | kW | 2.50 | 3.30 | 4.31 | 2.51 | 3.20 | 3.70 |
| -7 °C/+35°C - under-floor heating | | kW | 3.52 | 3.96 | 4.86 | 4.28 | 5.18 | 5.40 |
| +7 °C/+45°C - LT radiators | | kW | 2.61 | 3.25 | 4.54 | 3.01 | 3.81 | 4.00 |
| -7 °C/+45°C - LT radiators | | kW | 3.40 | 4.20 | 5.26 | 4.63 | 6.00 | 6.37 |
| **Coefficient of performance (COP)** | **(+7°C/+ 35°C)** | | **3.90** | **4.00** | **3.60** | **4.30** | **4.22** | **4.10** |
| **Gas boiler performances** | | | | | | | | |
| Class according to output directive 92/42/CEE | | kW | | | Condensation | | | |
| Class according to RT 2005 | | kW | | | Condensation | | | |
| Nominal calorific flow rate | | kW | | | 24.7 | | | |
| Nominal useful power (heating / hot water) | | kW | | | 24 / 24 | | | |
| Nominal useful power in condensation (return 30 °C) | | kW | | | 24.8 | | | |
| Minimum useful power (80/60 °C) | | kW | | | 5.5 | | | |
| Minimum calorific flow rate | | kW | | | 5.7 | | | |
| **Electrical characteristics** | | | | | | | | |
| Voltage (50 HZ) | | V | 230 | 230 | 230 | 400 | 400 | 400 |
| Maximum current of the appliance | | A | 17 | 20 | 26 | 8,5 | 9.5 | 10.5 |
| Nominal current | | A | 11.7 | 16.7 | 20.6 | 3,7 | 4.8 | 5.5 |
| Actual power absorbed... | | | | | | | | |
| - by the fan | | W | 103 | 2 x 103 | 2 x 103 | 2 x 104 | 2 x 104 | 2 x 104 |
| - by the heat flow pump circulators (max) / gas generator | | W | | | 132 / 93 | | | |
| Maximum power absorbed... | | | | | | | | |
| - by the outdoor unit | | W | 3910 | 4600 | 5980 | 5865 | 6555 | 7245 |
| - by the hydraulic module | | W | | | 244 | | | |
| **Hydraulic circuit** | | | | | | | | |
| Max. operating pressure (PMS) | | bar | | | 3 | | | |
| Flow rate of the hydraulic circuit at 4°C<Δt<8°C (nominal conditions) | | | | | | | | |
| - Min flow rate | | l/h | 1000 | 1380 | 1670 | 1170 | 1460 | 1650 |
| - Max flow rate | | l/h | 2100 | 2700 | 3300 | 2340 | 2920 | 3290 |
| Expansion vessel | | litre | | | 18 | | | |
| **Refrigerating circuit** | | | | | | | | |
| Diameters of the gas pipes | | inch | | | 5/8 | | | |
| Diameters of the liquid pipes | | inch | | | 3/8 | | | |
| Factory charge of refrigerating R410A[(1)] | | g | 2100 | 3350 | 3400 | 2500 | 2500 | 2500 |
| Max. operating pressure | | bar | | | 41,5 | | | |
| Pipe length (min / max [(2)]) | | m | 5 / 20 | 5 / 20 | 5 / 20 | 5 / 15 | 5 / 15 | 5 / 15 |

(1) Refrigerant R410A in compliance with standard NF EN 378.1.

(2) Factory charge of refrigerating fluid R410A.

(3) Taking into account the potential additional charge of refrigerating fluid R410A (see page 30).

| **Model denomination** | **alféa hybrid duo gas** | 10 | 13 | 16 | 11 three | 14 three | 16 three |
|---|---|---|---|---|---|---|---|
| Max pipe length [3] / Max gradient [3] | m | - / 20 | - / 20 | - / 20 | 20 / 20 | 20 / 20 | 20 / 20 |
| **Domestic hot water tank** | | | | | | | |
| Capacity of domestic hot water tank | litre | 120 | | | | | |
| Max DHW circuit usage pressure (PMS) | bar | 7 | | | | | |
| Specific DHW flow rate at DT 30°K (D) | l/mn | 20 | | | | | |
| Max temperature | °C | 65 | | | | | |
| **Miscellaneous** | | | | | | | |
| Weight of the outdoor unit | kg | 64 | 98 | 105 | 99 | 99 | 99 |
| Weight of the hydraulic module (empty/with water) | kg | 135 / 278 | | | | | |
| Hydraulic module water capacity | litre | 23 | | | | | |
| Acoustic power [5] according to EN12102 (hyd. module: thermodynamic mode) | dB (A) | 46 | | | | | |
| Noise level [4] at 5 m (outdoor unit) | dB (A) | 41 | 40 | 44 | 39 | 41 | 42 |
| Acoustic power [5] in compliance with EN 12102 (outdoor unit) | dB (A) | 68 | 71 | 71 | 66 | 68 | 69 |
| **Heating operating limits** | | | | | | | |
| Min./max. outdoor temp. (thermodynamic mode) | °C | -15 / +24 | -15 / +24 | -15 / +24 | -25 / +35 | -25 / +35 | -25 / +35 |
| Max. water temperature (thermodynamic mode) | °C | 52 | 52 | 52 | 60 | 60 | 60 |
| Max. flow water temperature for start of heating | °C | 80 | | | | | |
| **Gas boiler characteristics** | | | | | | | |
| **Gas flow rate in continuous operation** (15°C - 1013 mbar) | | | | | | | |
| - Natural gas (G20 - 20 mbar) | m³/h | 2.55 | | | | | |
| - Natural gas (G25 - 25 mbar) | m³/h | 2.93 | | | | | |
| - Propane (G31 - 37 mbar) | m³/h | 1.00 | | | | | |
| **Diaphragm** (gas valve outlet) | | | | | | | |
| - Natural gas (G20 - 20 mbar) item - diameter | item - Ø | 20 - 6.5 mm | | | | | |
| - Natural gas (G25 - 25 mbar) item - diameter | item - Ø | none | | | | | |
| - propane (G31 - 37 mbar) item - diameter | item - Ø | conical - 3.9 mm | | | | | |
| **Combustion products** | | | | | | | |
| Smoke temperature (minimum / maximum) | °C | 35 / 70 | | | | | |
| Smoke mass flow rate (minimum / maximum) | g/s | 2.87 / 11.9 | | | | | |
| **Concentric horizontal or vertical room sealed ( turbo ) pipe** | | | | | | | |
| Smoke / air aspiration tube diameter (C13, C33) | mm | 80 / 125 | | | | | |
| Smoke tube diameter (C53) | mm | 80 | | | | | |
| Maximum authorised straight line length (excluding terminal) | m | 11 | | | | | |
| Loss of charge by elbow (90° / 45°) | m | 1 / 0.5 | | | | | |
| Compatible terminal and material | | UBBINK [5] / POUJOULAT [5] | | | | | |
| **With chimney adaptor** | | | | | | | |
| Smoke tube diameter | mm | 80 | | | | | |
| Optimum low pressure in the chimney (type B23) | Pa | 15 | | | | | |
| Max. pressure available on the evacuation nozzle (type B23P) | Pa | 70 | | | | | |
| Max. pressure available on the evacuation nozzle (type B23P) | Pa | | | | | | |

[4] Sound pressure level at (x) m from the appliance, 1.5 m from the ground, free field, directivity 2.

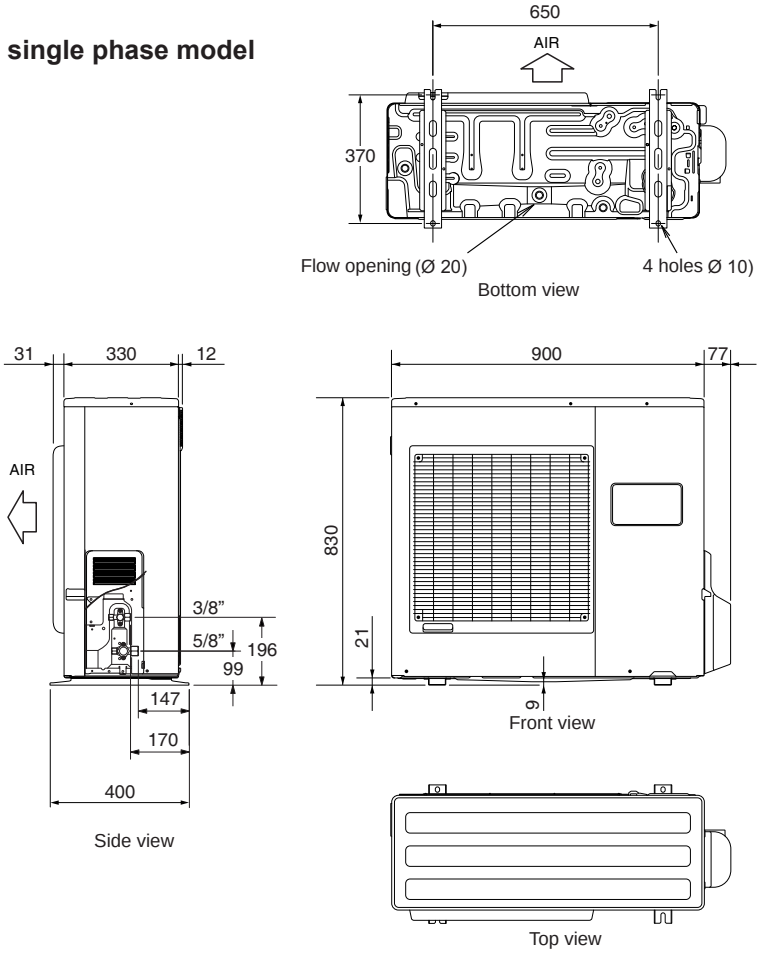
[5] The acoustic power is a measurement made in the laboratory of the power of the noise emitted but contrary to the noise level, it does not correspond to the measurement of what is felt.

[5] : We only guarantee the correct operation of the gas generator with the room sealed ( turbo ) pipe described below:

- Ubbink supplies.
  - UBBINK ROLUX CONDENSATION GAS with polypropylene (PPTL) internal pipe.
  - ROLUX vertical terminal 80/125 - 4 G.
  - ROLUX CON HR vertical terminal FV80/125.
  - Rénolux system for adaptation to the existing evacuation pipe.
- Poujoulat supplies.
  - Dualis horizontal condensation terminal 80/125. STH 80 GP Poujoulat.
  - Dualis vertical condensation terminal 80/125. STV 80 GP Poujoulat.
- Concentric pipes 250, 500, 1000 or 2000 mm and length adjustable 50 to 300 mm. 45 and 90° elbows.

**The use of aluminium connection pipes is prohibited.**

☞ **Outdoor unit,**
**hybrid duo gas 10 single phase model**




☞ **Outdoor unit,**
**hybrid duo gas 13 single phase model,**
**hybrid duo gas 16 single phase model**

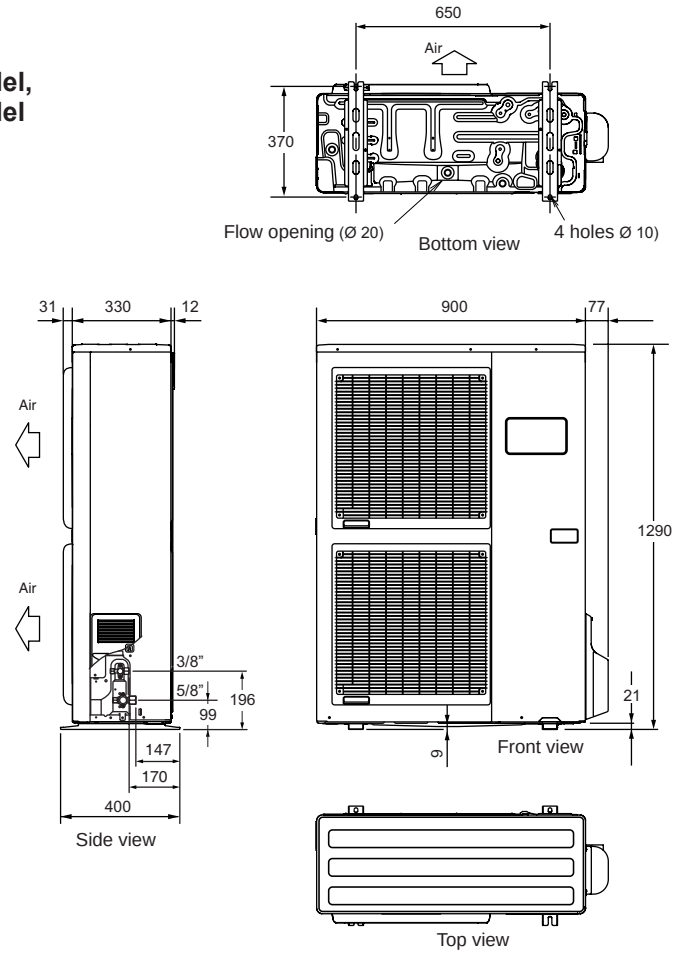



***figure 1 - Dimensions in mm***

**Outdoor unit,**
**hybrid duo gas 11 three-phase model,**
**hybrid duo gas 14 three-phase model,**
**hybrid duo gas 16 three-phase model**

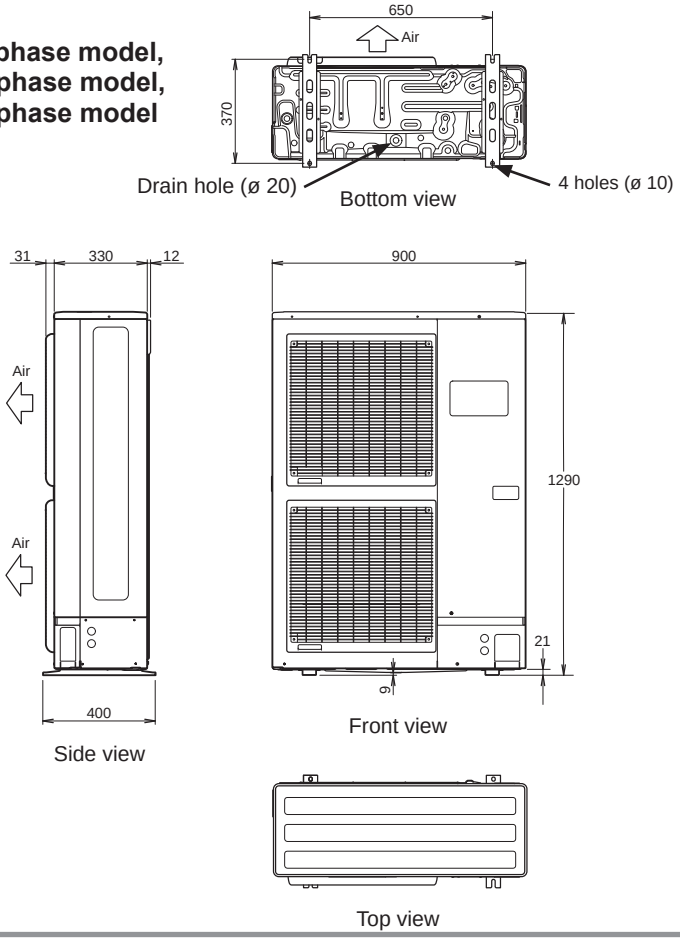
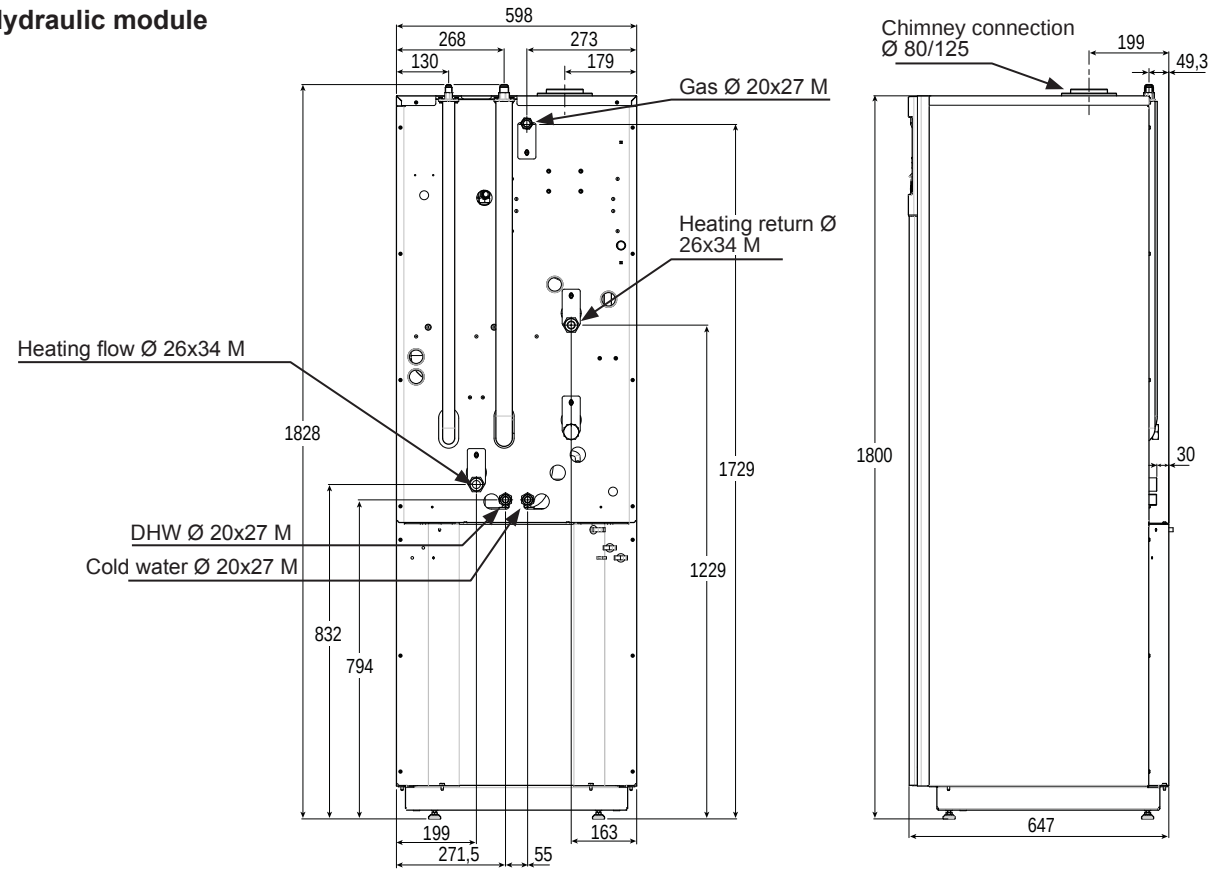



*figure 2 - Dimensions in mm*

**Hydraulic module**




Dimensions of the hydraulic module, see figure 17, page 19.

*figure 3 - Dimensions in mm*

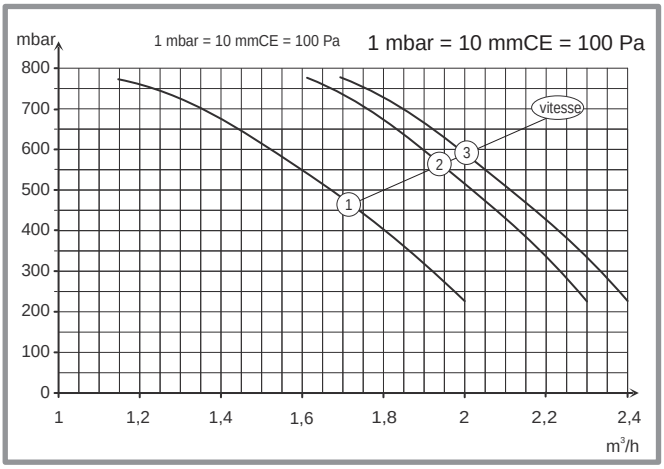



*figure 4 - Hydraulic pressures and flow rates available*

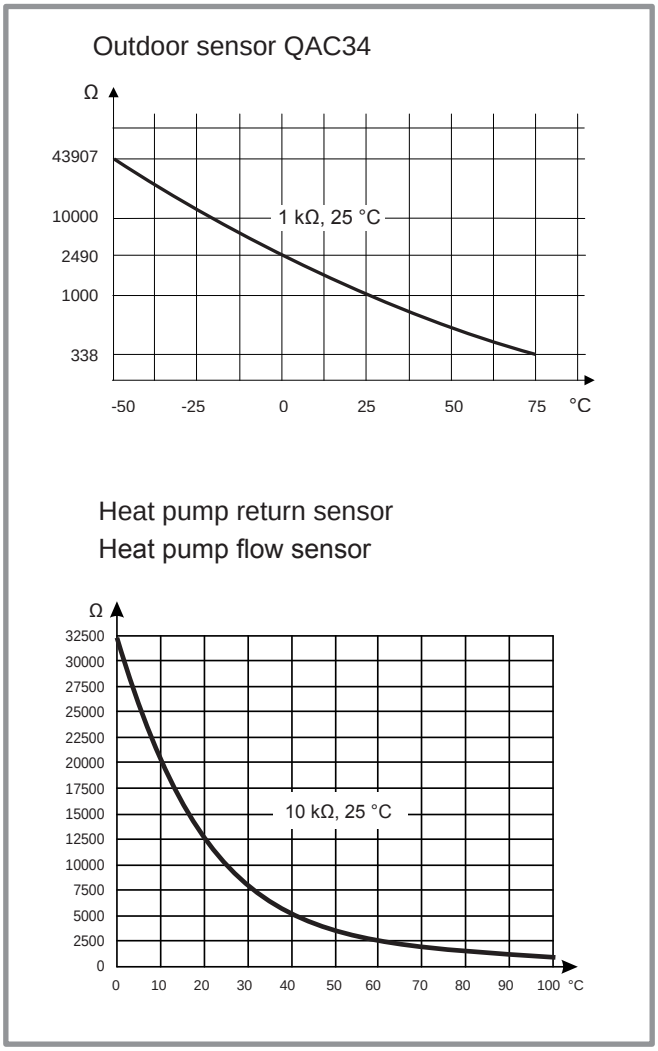



*figure 5 - Ohmic value of the sensors (hydraulic module)*

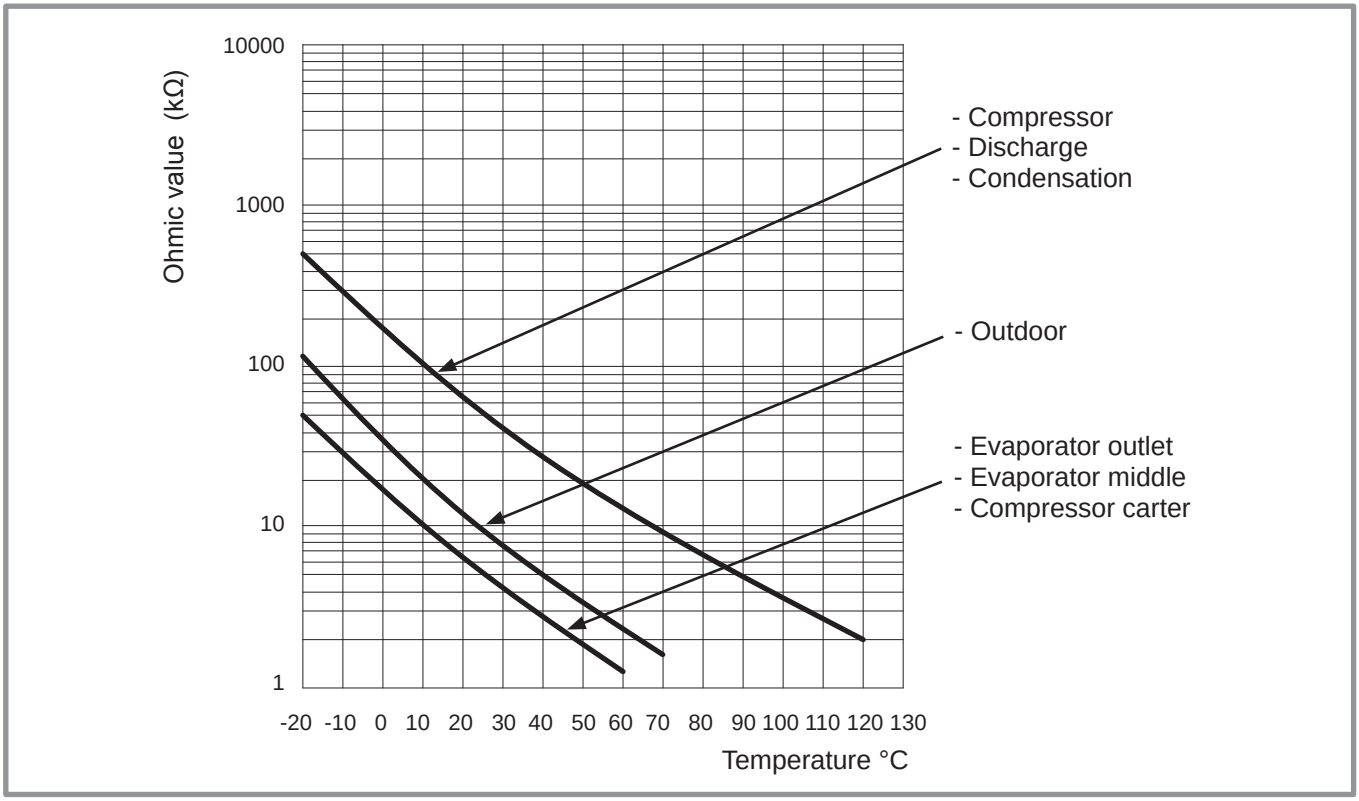
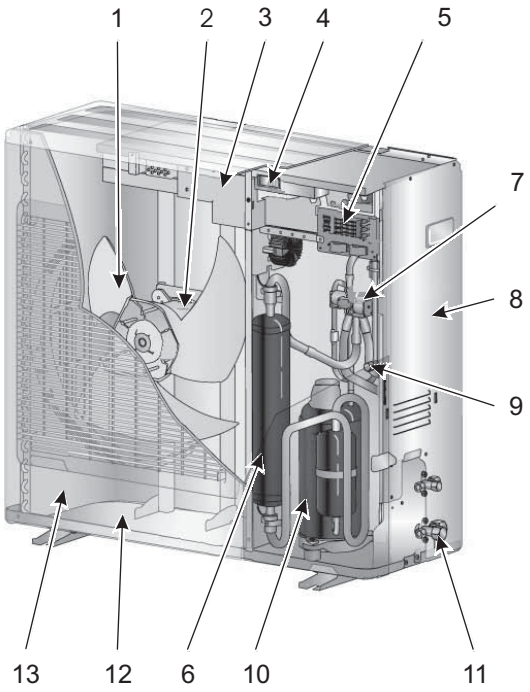


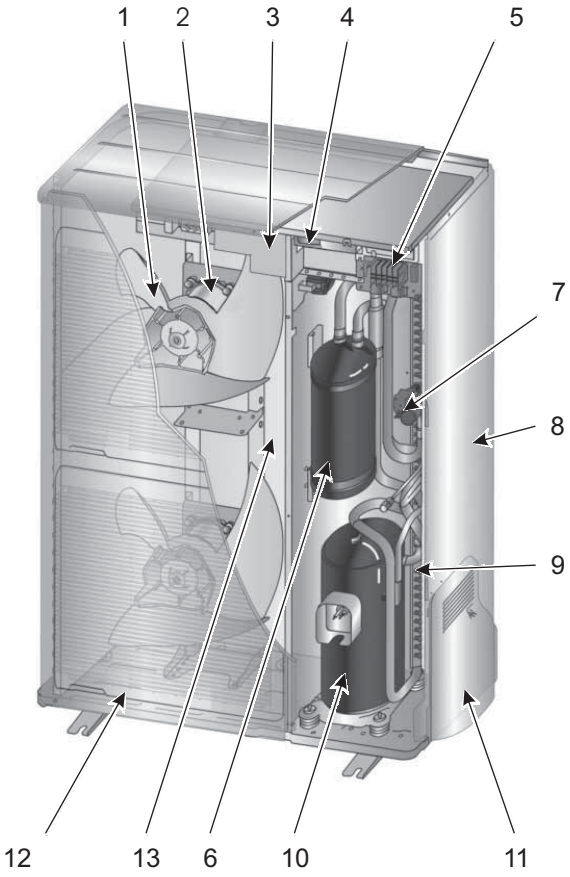

*figure 6 - Ohmic value of the sensors (outdoor unit)*

## 1.6 Description

☞ **hybrid duo gas 10**




☞ **hybrid duo gas 13, hybrid duo gas 16**




***Legend***

1 - High performance impeller and low noise level.
2 - Electrical motor with variable "inverter" operation.
3 - "Inverter" command module.
4 - Control LEDs and buttons.
5 - Connection terminal blocks (power supply and inter-connection).
6 - Storage bottle for refrigerating fluid.
7 - Cycle inversion valve.
8 - Panels treated against corrosion.
9 - Electronic pressure regulator.
10 - "Inverter" compressor acoustically and thermally insulated.
11 - Refrigerating connection taps (flare connector) with protective cover.
12 - Condensate basin with drain hole
13 - High performance exchange surface evaporator; anti-corrosion treated hydrophilic aluminium fins and grooved copper tubes.
14 - Solenoid valve for injection of liquid.
15 - Electronic pressure regulator for injection of liquid.
16 - "Inverter" compressor acoustically and thermally insulated with liquid injection port.

☞ **hybrid duo gas 11, 14 & 16 3-phase**

WO*K1**LCT

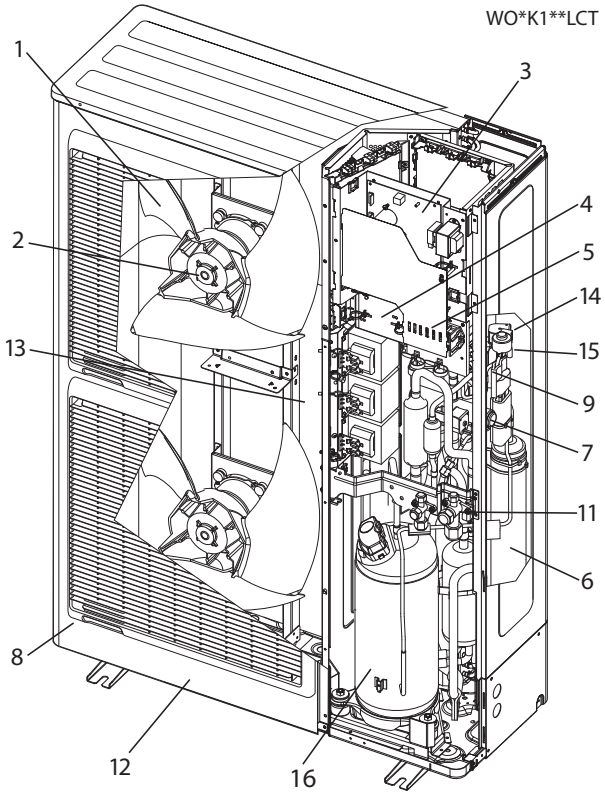
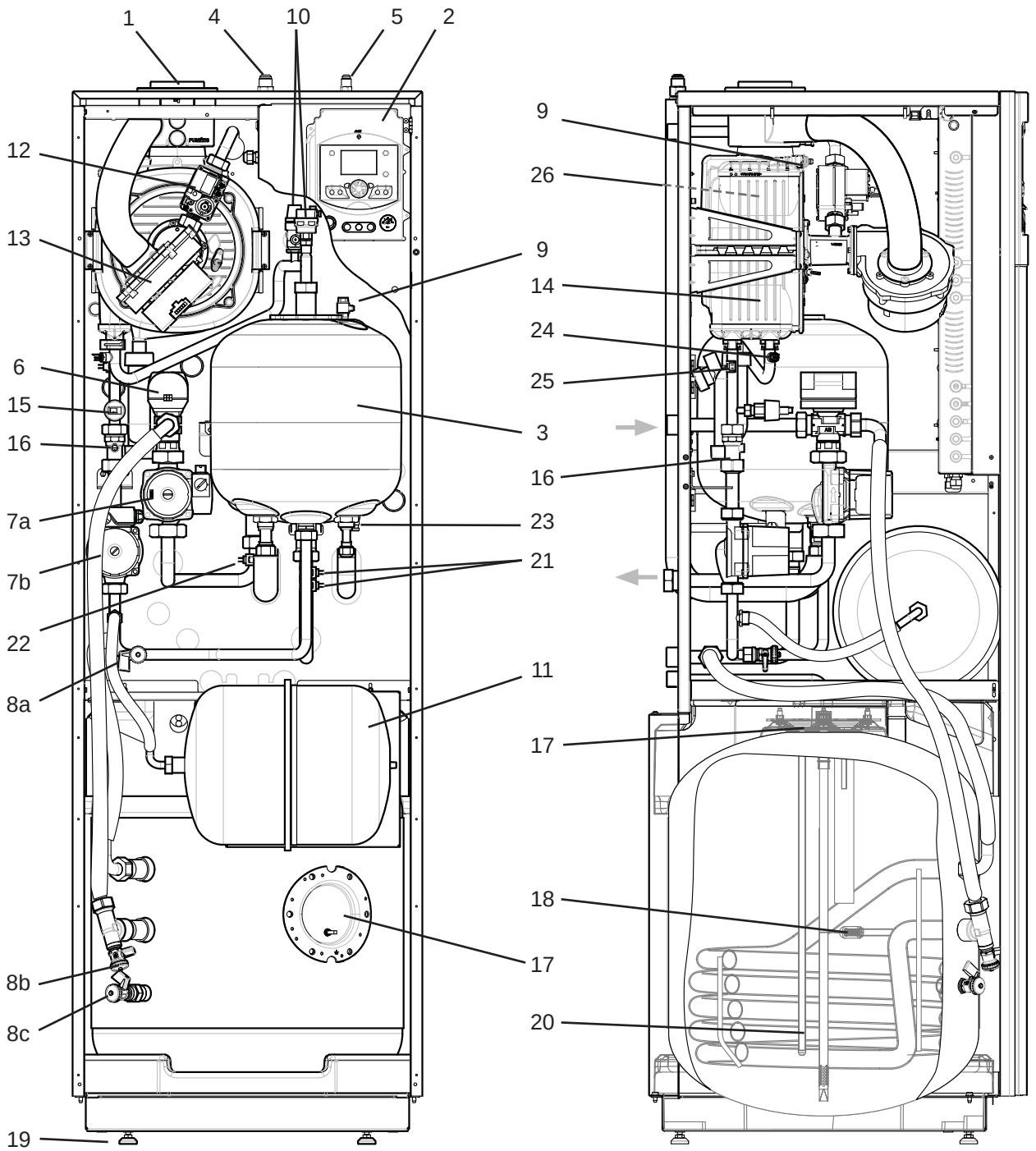


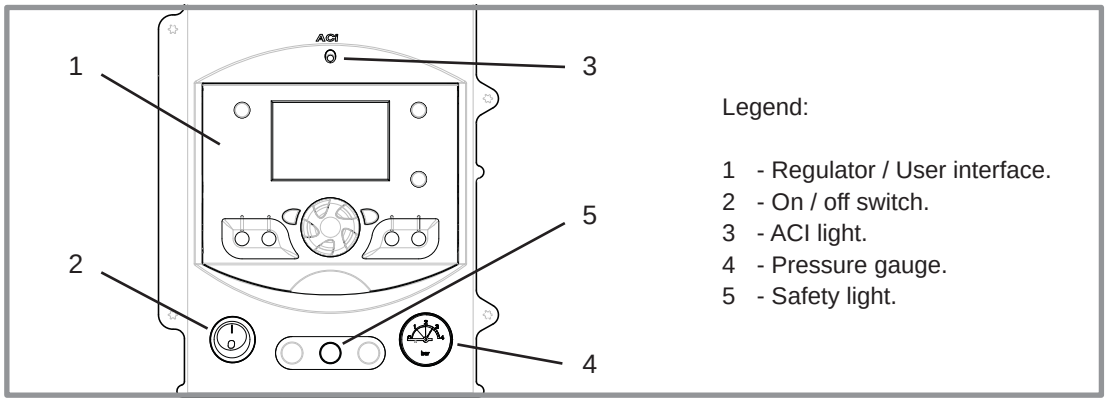

***figure 7 - Outdoor unit devices***




Legend:

1 - Chimney adaptor.
2 - Control panel:
Regulator / User interface,
On / off switch,
Pressure gauge, Light.
3 - Heat pump condenser.
4 - "Gas" refrigerating connector
5 - "Fluid" refrigerating connector
6 - Directional valve.
7 - Circulator
a - Heating (heating circuit),
b - Gas exchanger (CEG).
8 - Drainage tap
a - Heating body
b - Hot water exchanger
c - Hot water tank
9 - Manual drain tap.
10 - Safety valve,
Automatic drain tap.
11 - 18l expansion vessel (maintenance position).
12 - Gas valve.
13 - Fan.
14 - Gas condensing exchanger Gaz (EG)
15 - Pressure flap
16 - Disconnectable no return valve
17 - Inspection trap
18 - Titanium anode (ACI).
19 - Adjustable feet
20 - Hot water sensor.
21 - Heat pump output sensor, common sensor.
22 - Heat pump return sensor
23 - Condensation sensor.
24 - EG output sensor
25 - EG return sensor
26 - Smoke sensor.

***figure 8 - Hydraulic module devices***




Legend:

1 - Regulator / User interface.
2 - On / off switch.
3 - ACI light.
4 - Pressure gauge.
5 - Safety light.

*figure 9 - Control panel*

## 1.7 Operating principle

The heat pump transmits the energy in the outdoor air to the home to be heated and the production of domestic hot water.

The heat pump is formed of four main elements inside which a refrigerating fluid circulates (R410A).

- In the evaporator (item **13**, figure 7, page 11): The calories are taken from the outdoor air and transmitted to the refrigerating fluid. As its boiling point is low, it changes from the liquid state to the vapour state, even when the weather is cold.
- In the compressor (item **10** or **16**, figure 7, page 11): The vaporised refrigerating fluid is pressurised and thus carries more calories.
- In the condenser (item **3**, figure 8): The energy of the refrigerating fluid is transmitted to the heating circuit. The refrigerating fluid returns to its liquid state.
- In the pressure regulator (item **9** or **15**, figure 7, page 11): Then liquefied refrigerating fluid is reduced to low pressure and its initial temperature and pressure.

The heat pump has a regulator that controls the indoor temperature based on the measurement of the outdoor temperature, regulation by water logic. The ambient sensor (optional) provides a corrective action to the water logic.

The hydraulic module is equipped gas generator which operates at the request of the regulator:

- to provide additional heating during the colder periods,
- to reach the DHW comfort value
- to provide a relay during "Peak rate" days (load shedding or EJP function).

Priority is given to the operation of the heat pump.

When the heat pump is not sufficient for the heating, the gas generator automatically takes over.

**Leakproof type appliance (C13, C33, C53).**

The new air needed for combustion is taken from outside the horizontal or vertical terminal and is then aspirated into the boiler through the pipes (concentric or separate).

**Chimney type appliance (B23, B23P)**

The new air needed for combustion is taken from the room where the appliance is installed.

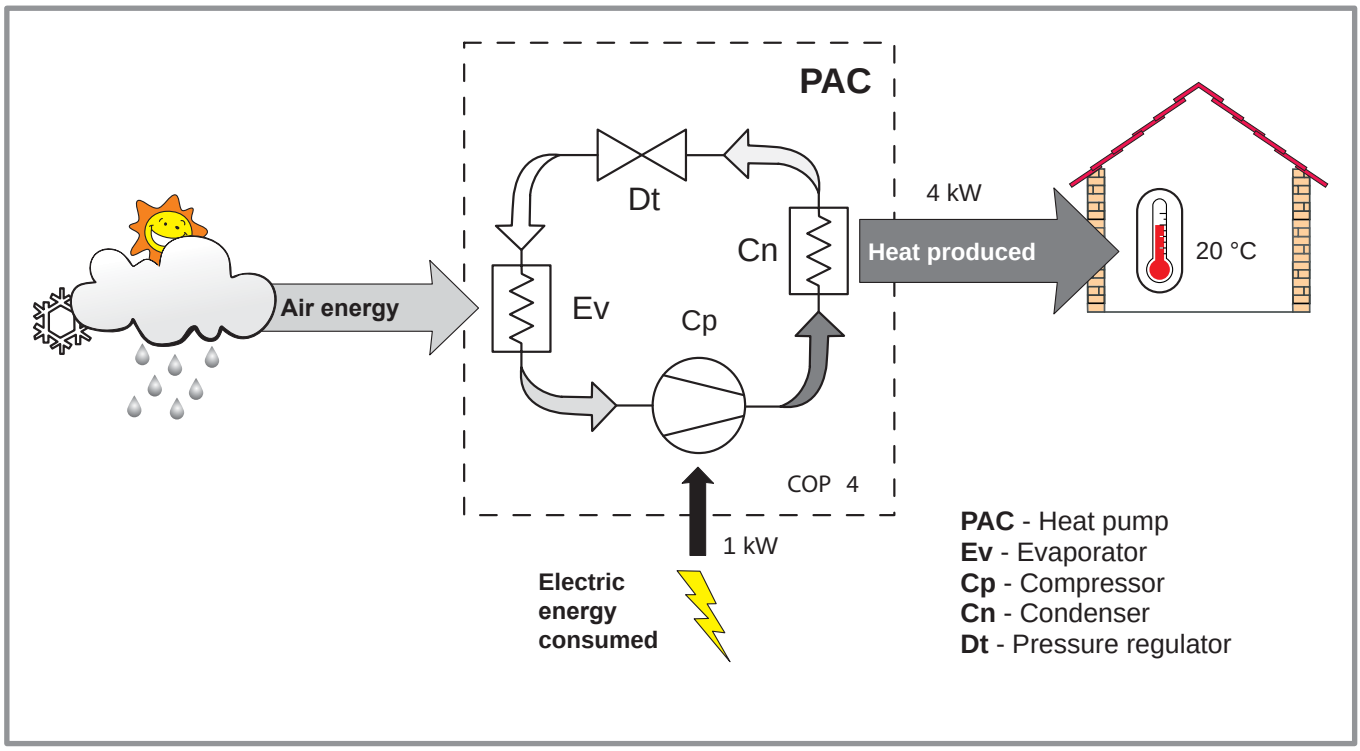



*figure 10 - Operating principle of a heat pump*

**• Regulation functions**

- The initial temperature of the heating circuit is controlled by water logic.
- In function of an initial heating temperature, the power of the outdoor unit is modulated via the "inverter" compressor.
- Management of the supplementary heating.
- The daily timer programme allows comfort or reduced ambient temperature periods.
- Switching between summer/winter operation is automatic.
- Ambient sensor*: The ambient sensor provides a corrective action to the water logic.
- Management of a 2nd heating circuit*.
- Domestic hot water: Hourly heating programme, management of the comfort temperature and the reduced temperature.

*When the heat pump is equipped with options and associated kits.

**• Protection functions**

- Anti-legionella cycle for the domestic hot water.
- Tank anti-corrosion protection by titanium anode (ACI).
- Antifreeze protection for the installation, DHW, etc.

**• Hydraulic pressure monitoring**

A pressure switch monitors the hydraulic pressure. If the pressure is lower than:

- 0.5 bars: Safety
- 0.8 bars: Power reduction and information on the display.

**• Miscellaneous**

- Start and return temperature monitoring.
- Smoke temperature monitoring.

**• Operating principle of the domestic hot water (DHW)**

DHW production takes priority over heating.

Two domestic hot water (DHW) temperatures may be set: comfort temperature (line 1610 at 55 °C) and reduced temperature (line 1612 at 40 °C).

The default DHW programme follows the hourly heating programme with 1 hour's advance on start-up.

Depending on the parameter setting (1620), the comfort temperature may be reached 24 hours / day or according to the DHW programme.

The reduced temperature value may be useful to avoid restarting the DHW too many times and for too long through the day.

The production of domestic hot water (DHW) is started when the temperature in the tank is 7°C below (setting of line 5024) the reference value temperature.

The domestic hot water (DHW) is produced by the heat pump and the boiler top-up.

A switching function of "reduced" to "comfort" is available on the front panel of the user interface (see item **1**, figure 53, page 46).

Anti-legionnella cycles may be programmed.

**• Fan coil units with integrated regulation**

Do not use an ambient sensor in the zone concerned.

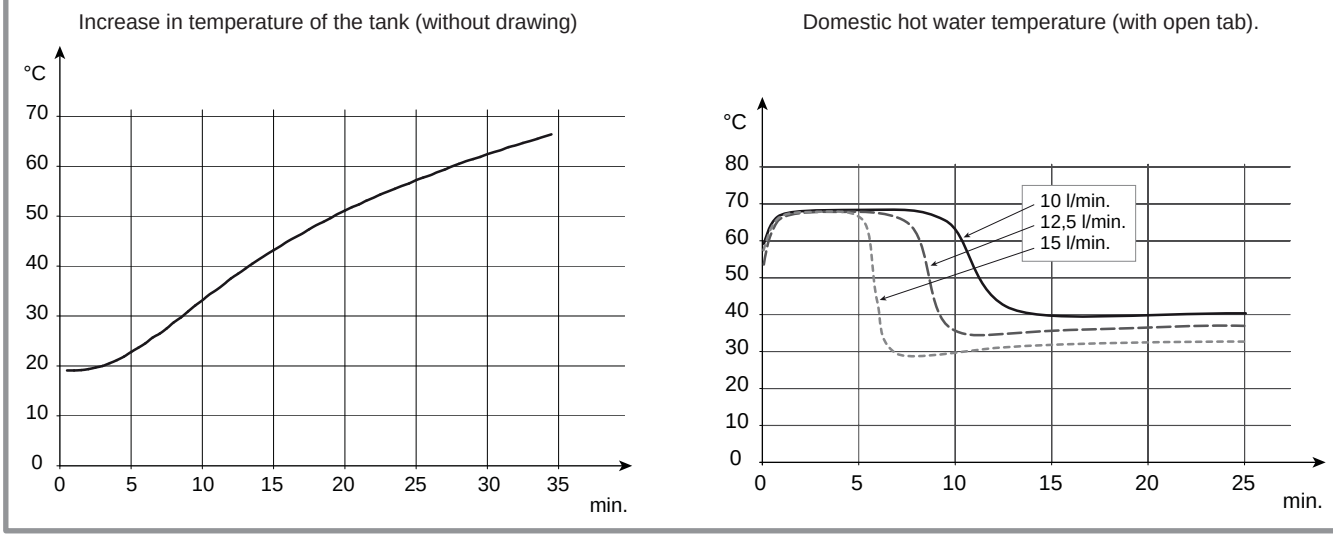



*figure 11 - Hot water performances*

# 2 Installation

## 2.1 Installation and maintenance rules

The appliance must be installed and maintained by an approved practice.

## 2.2 Unpacking and reserves

### 2.2.1 Reception

When the courier is present, carefully check the general appearance of the appliances, check that the outdoor unit has not been in horzontal position. In the event of disagreement, write to the courier within 48 hours mentioning all reserves and send a copy of this letter to the After Sales Department.

### 2.2.2 Handling

The outdoor unit must not be in horizontal position during transport. Transport in a horizontal position creates risk of damage to the appliance by moving the cooling fluid and damaging the compressor's suspension.

Damage caused by transport transport in horizontal position is not covered by the warranty.

If required, the outdoor unit may be tilted only when being moved by hand (to get it through a doorway, or up stairs...). This operation must be carried out carefully and the appliance must be immediately returned to the vertical position.

### 2.2.3 Containment of refrigerant circuits

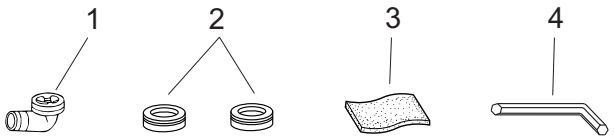
All refrigerant circuits fear contamination from dust and moisture. If such pollutants introduced into refrigeration circuit, they can contribute to degrade the reliability of the heat pump.

☞ **It's necessary to ensure correct containment connections and refrigerant circuits (hydraulic unit, outdoor unit).**

☞ **In case of subsequent failure and expertise, the finding of the presence of moisture or foreign objects into the compressor oil would lead to systematic exclusion of warranty.**

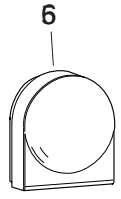
- Check upon receipt that the fittings and the refrigeration circuit caps mounted on hydraulic unit and outdoor unit are properly seated and locked (impossible to loosen bare hands). If this's not the case, tighten them using an against wrench.
- Check also that the refrigerant connections are sealed (plastic caps or tubes crushed at the ends and soldered). If the caps must be removed during installation (tubes cut by example), put back them as soon as possible.

### 2.2.4 Accessories supplied




| | | |
|---|---|---|
| 1 | Elbow | for condensate evacuation |
| 2 | Plugs (x2) (depending on model) | |
| 3 | Flexible insulating plate | to fill the vacuum on the entrance of the interconnection cable |
| 4 | Spanner | to open valves |

*figure 12 - Accessories supplied with the external unit*




| | |
|---|---|
| Outdoor sensor | |
| to detect the outdoor temperature | |

*figure 13 - Accessories provided with the hydraulic module.*

## 2.3 Positioning

The choice of the position is particularly important as having to move it later is a delicate operation that requires a qualified person.

Choose the position of the outdoor unit and the hydraulic module after discussion with the client.

Respect the max. and min. distances between the hydraulic module and the outdoor unit (figure 26, page 27), as the performances and life of the system depend on this.

## 2.4 Installing the outdoor unit

### 2.4.1 Installation precautions

☞ **The outdoor unit must only be installed outdoors. If a shelter is required, it must have large apertures on all 4 sides and respect the space required for the installation (single phase model figure 14 or three phase model figure 15)**

- Prefer a sunny location, sheltered from strong and cold dominant winds.
- The appliance must be completely accessible for subsequent installation and maintenance work (**single phase figure 14 or three phase model figure 15**).

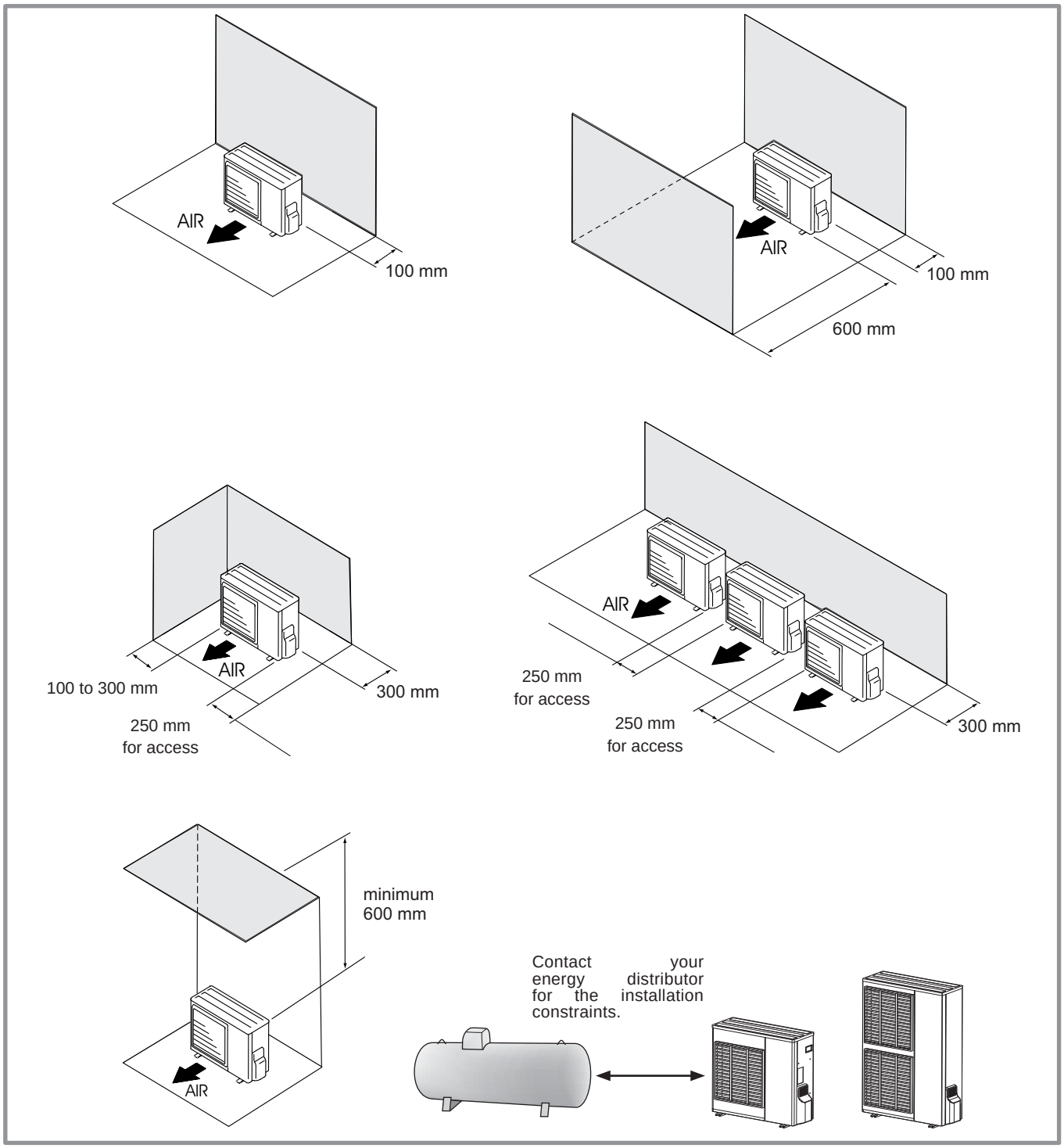



*figure 14 - Minimum installation clearance around the outdoor unit (single phase models)*

- Ensure that the connections can be made easily with the hydraulic module.
- The outdoor unit can be exposed to the weather, however avoid installing it in places where it will become dirty or have excessive water dripping onto it (under a leaky drainpipe for example).
- When operating water may escape from the outdoor unit. Do not install the appliance on a terrace; install it at a location which is drained (bed of gravel or sand). If installed in a region where the temperature may be below 0°C for a long period, check that the ice does not cause any danger. It is also possible to connect a pipe to evacuate to the outdoor unit (figure 16).
- No obstacles must obstruct the circulation of air through the evaporator and the fan outlet (**single phase figure 14 or three phase model figure 15**).
- Keep the outdoor unit away from sources of heat or inflammable products. Contact your energy distributor for the installation constraints.
- Ensure that the appliance does not disturb neighbours or users (noise level, draughts caused, low of the air blown causing a risk of freezing plants in its path).
- The surface on which the outdoor unit is fitted must:

- Be permeable (earth, gravel bed...),
- Support the weight comfortably,
- Permit it to be solidly attached,
- Not transmit any vibration to housing (anti-vibration posts are available as accessories).

- The wall bracket can not be used in conditions likely to transmit vibrations, ground position is preferred.

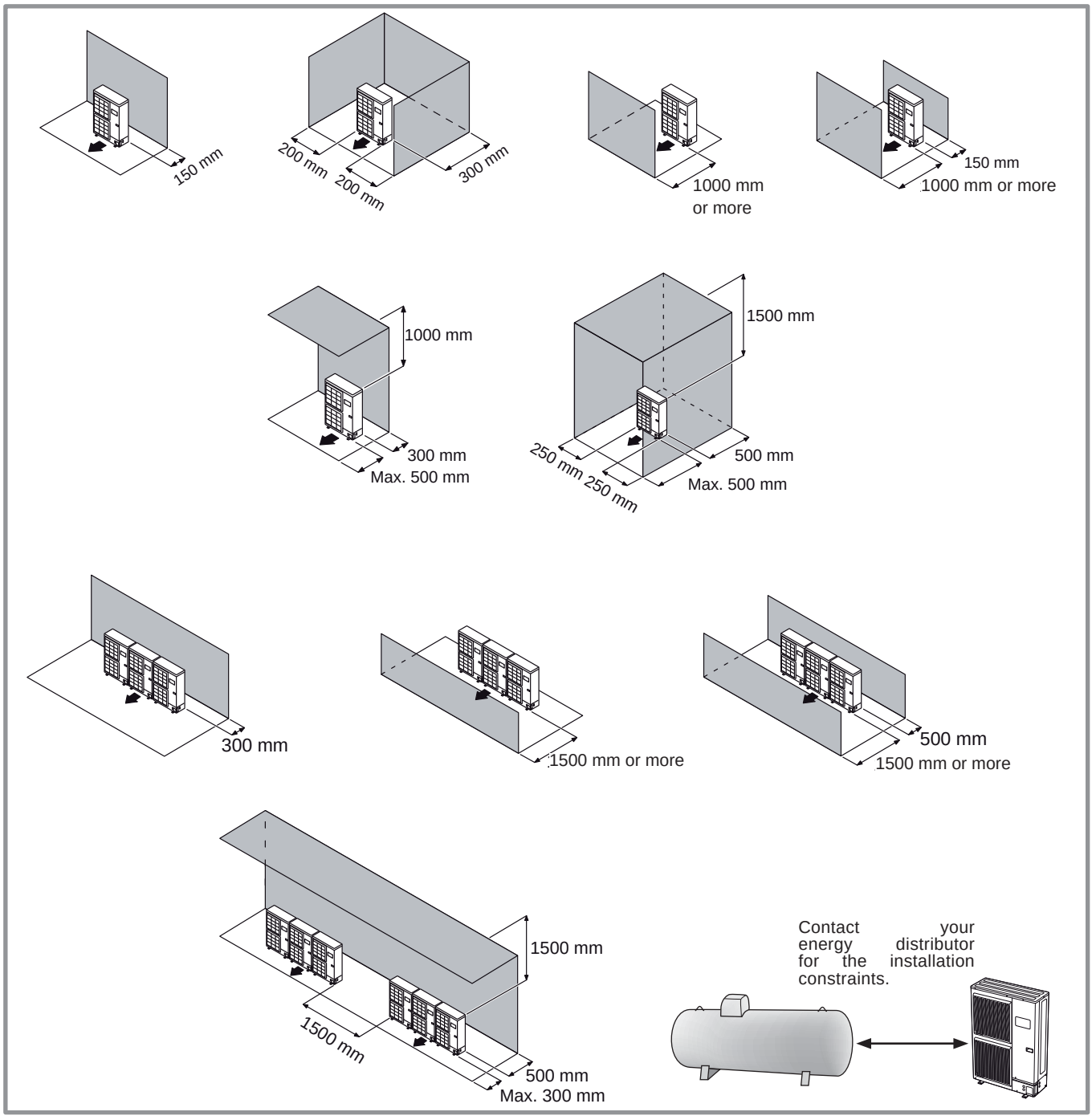



***figure 15 - Minimum installation clearance around the outdoor unit (three phase models)***

### 2.4.2 Fitting the outdoor unit

The outdoor unit must be raised by at least 50 mm from the ground. In snowy regions, this height must be increased but must not exceed 1.5 m (figure 16).

- Attach the outdoor unit using screw and spring or split washers to ensure they do not come loose.

☞ **Warning**

In regions with heavy snowfall, if the outdoor unit's entrance and exit are blocked by snow it may be difficult to heat up and may probably cause a breakdown. Build an awning or place the appliance on a tall support (local configuration).

- Put the appliance on a solid support to minimise impact and vibration.
- Do not place the appliance directly on the ground as this may cause problems.

### 2.4.3 Connecting the condensate evacuation pipe

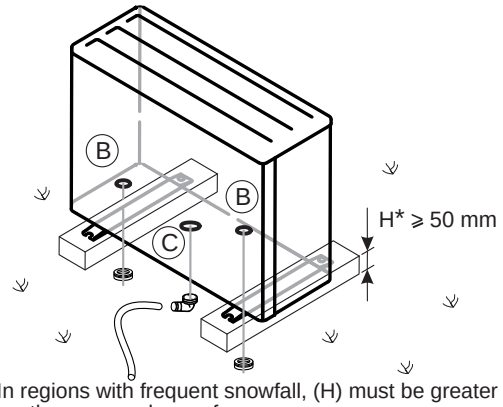
(see figure 16).

If an evacuation pipe must be used:

- Use the elbow provided (**C**) and connect a flexible hose of 16 mm diameter to evacuate the condensates.
- Use the plug(s) supplied (**B**) to obstruct the orifice of the condensate tray.

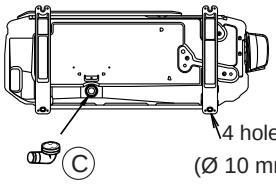
Fit so that gravity flow of the condensates is ensured (waste water, rainwater, gravel bed).

☞ **If the appliance is installed in a region where the temperature may fall below 0 °C for long periods, fit the evacuation pipe with a resistance trace to avoid it icing over. The resistance trace must heat not just the evacuation pipe but also the bottom of the condensate drip tray of the appliance.**

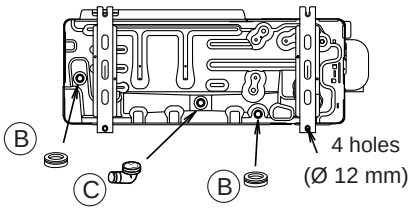



* In regions with frequent snowfall, (H) must be greater than the average layer of snow.

Depending on model




Depending on model




Depending on model

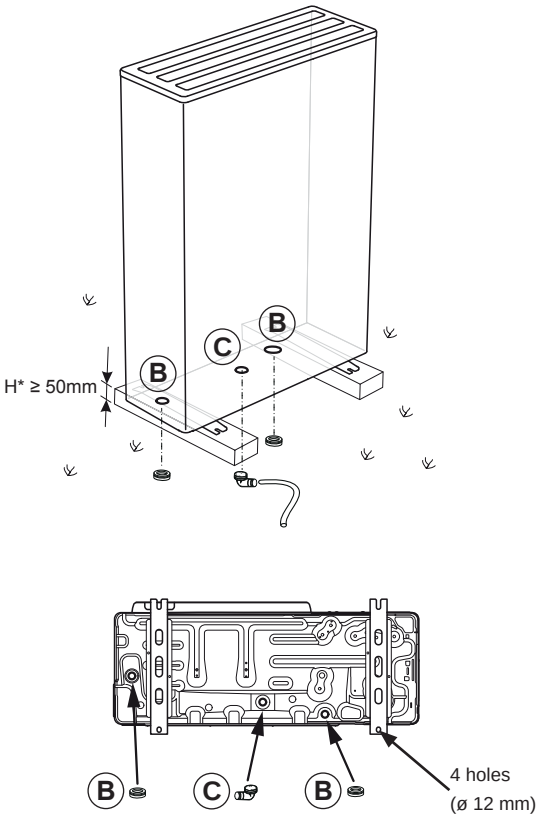



***figure 16 - Fitting the outdoor unit, evacuation of the condensates***

## 2.5 Installing the hydraulic module

### 2.5.1 Room where to install

• The room where the appliance operates must respect the regulations in force.

**This equipment may not be installed in a bathroom or a shower room.**

The atmospheric conditions in the room must not be humid; humidity is damaging for electrical appliances. If the ground is humid or soft, use a base of sufficient height.

• To facilitate the servicing operations and permit access to the various parts, it is recommended that sufficient space be left all around the hydraulic module (figure 17).

• If necessary, install the hydraulic module on anti-vibration posts or any other resilient material to limit the sound level caused by vibration.

• **Room-sealed ( turbo) pipe** (C13, C33)

As the appliance is leakproof, no specific precautions are required concerning ventilation of the premises.

• **With Separate pipe adaptor** (C53)

Configuration possible only in boiler room.

• **With chimney adaptor** (B23, B23P)

The appliance must be installed in a suitable and well ventilated room. The room must have a fresh air inlet (A) with a free non-blockable cross section of at least 50 $cm^2$ located in the lower part and a used air outlet (B) with a free non-blockable cross section of at least 100 $cm^2$ positioned in the upper part and opening directly outdoors (see figure 17).

The air renewal volume must be at least (P(kW) x 2) $m^3/h$, i.e. 48 $m^3/h$.

The warranty on the heater will not cover any installation of the appliance in a chlorine rich atmosphere (hairdressers, launderette, etc.) or any other corrosive vapours.

• Be careful of the presence of inflammable gas close to the heat pump when it is installed, especially when brazing is required. The appliances are not antiexplosion and must therefore not be installed in an explosive atmosphere.

- To avoid condensation inside the condenser, remove the refrigerant circuit caps **only when building the refrigerant connections**.

- If the refrigerant connection only occurs at the end of the installation, be sure that the refrigerant circuit caps* remain in place and tight throughout the installation duration.
  * (hydraulic unit side and outdoor unit side)

- After every intervention on the refrigeration circuit and before final connection, take care to replace the plugs in order to avoid any pollution from the refrigeration circuit (The sealing with tape is prohibited).

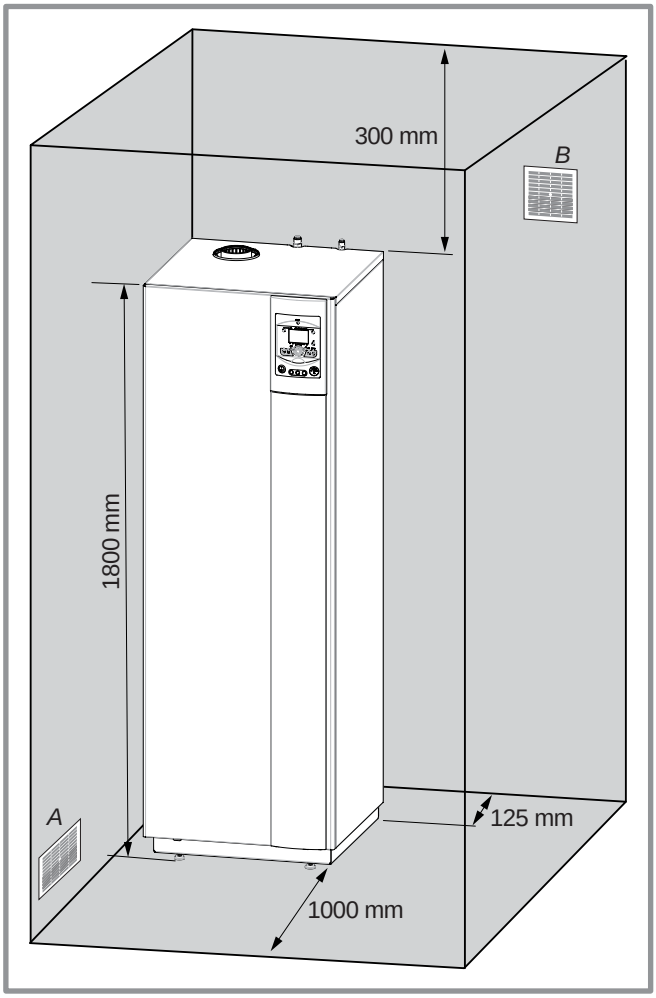



*figure 17 - Minimum installation clearances around the hydraulic module and gaps to the combustible partitions*

## 2.6 Chimney evacuation pipe, B23, B23P

The evacuation pipe must comply with the regulations in force.

The evacuation pipe must be dimensioned (according to standard NF EN 13384-1).

The pipe must only be connected to a single appliance.

The pipe must be waterproof.

The pipe must have good thermal insulation.

The evacuation pipe must comply with the decree of 22nd October 1969 (figure 19).

**B23P type (figure 20, page 21)**

The smoke pipe entry must be located:

• Either in the premises which contain the appliance,

• Or in adjacent premises.

- In this case, it must be coupled to a wall that separates the two premises to enable direct connection through this wall.
- The cross piece through the first wall must be leakproof.
- When the cross pieces are installed for the other walls, no sealing system must be implemented to enable the wall / pipe annular area to be completely free.
- The distance between the combustion product evacuation pipe and the chimney pipe walls must be greater than 20 mm.
- The space between the evacuation pipe and the chimney pipe must be linked at the top with the outside directly through an opening of at least 100 cm².

## 2.7 Chimney connection pipe, B23, B23P

The connection pipe must comply with the regulations in force.

The cross section of the connection pipe must not be smaller than the outlet nozzle of the appliance.

The connection pipe must be removable.

The evacuation nozzle is to be connected to the pipe so that there are no leaks.

**Reminder: The chimney adaptor provided must be used (073 295)** (figure 18).

The appliance will be connected to the evacuation pipe using commercially-available pipes that are approved to withstand combustion products, condensate and smoke temperatures of at least 120 °C.

**The use of aluminium connection pipes is prohibited.**

By design, the boiler's smoke temperature cannot exceed 120 °C, therefore, there is no need to add an evacuation pipe protection thermostat.

| | |
|---|---|
| **B23** | It is strongly recommended to fit a flue regulator to the pipe when the low pressure of the chimney is greater than 30 Pa. |
| **B23P** | The drain T is not necessary since the condensate recovery is incorporated into the boiler (figure 33, page 32). |

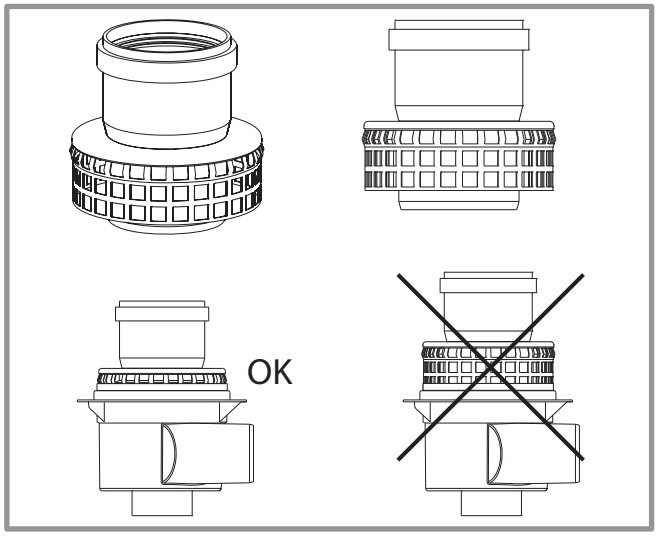



*figure 18 - Assembly of the chimney adaptor 073295 (B23, B23P)*

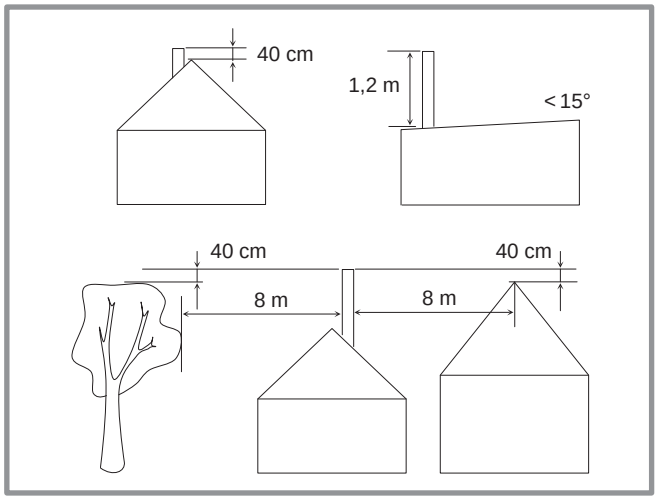
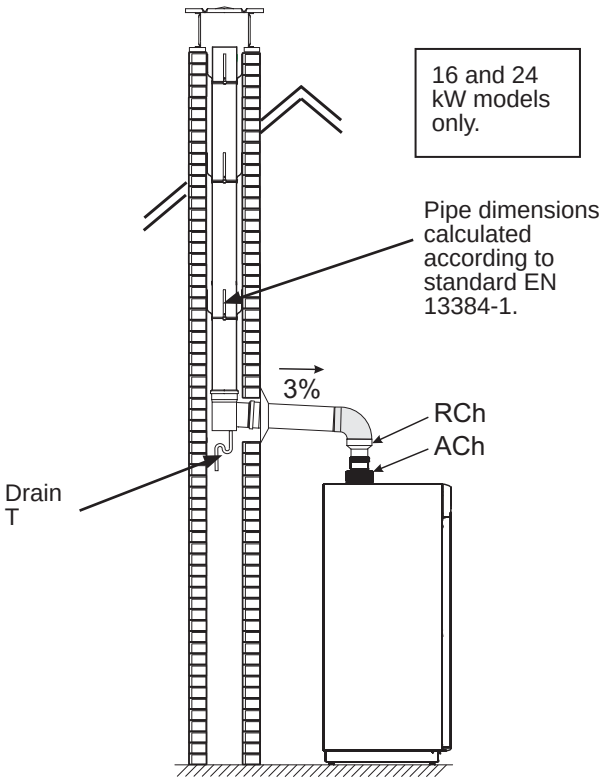
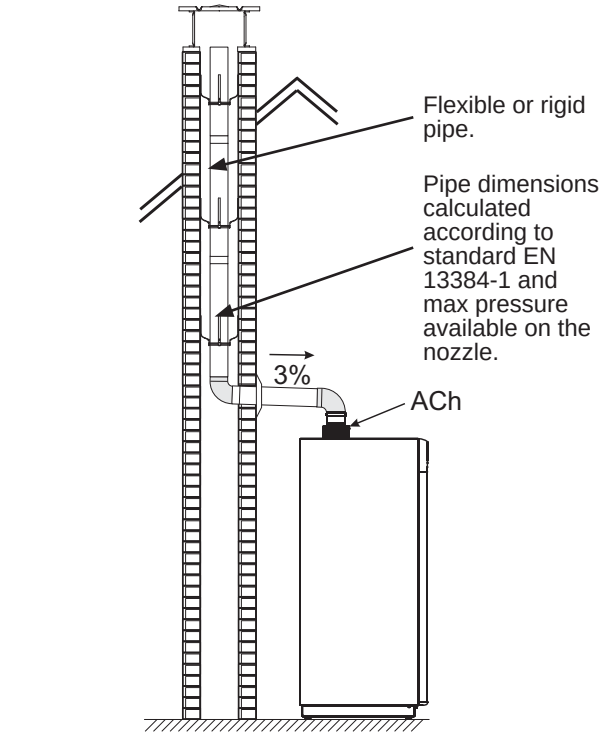



*figure 19 - Height of the base of the evacuation duct (B23, B23P)*

**B23 type chimney connection**




**B23P type chimney connection**


Flexible or rigid pipe.
Pipe dimensions calculated according to standard EN 13384-1 and max pressure available on the nozzle.
3%
ACh

**ACh** - Chimney adaptor 80 (073 295).
**RCh** - Chimney adaptor 80-125 (073 423).

*figure 20 - Connection possibilities (B23 and B23P type)*

## 2.8 Room-sealed connection pipe C13, C33, C53

The connection pipe must be removable.

By design, the boiler's smoke temperature cannot exceed 120 °C, therefore, there is no need to add an evacuation pipe protection thermostat.

**The boiler must be connected:**

- Either to a horizontal oxidising air intake and combustion product evacuation mechanism (C13 type).
- Either to a vertical oxidising air intake and combustion product evacuation mechanism (C33 type).
- Or to separate air intake and smoke evacuation pipes (C53 type).

Characteristics of the suction elements to be used (see characteristics table page 7).

**The use of aluminium connection pipes is prohibited.**

### 2.8.1 Concentric horizontal room-sealed pipe (C13 type)

**Regulations**

The evacuation pipe must lead directly to the outside through a wall.

The air intake and burnt gas evacuation opening must be placed at least 0.40 m away from any opening windows and 0.60 m away from any ventilation air intake openings.

If the evacuation leads onto a public or private road, it must be protected from any external interventions likely to harm its normal operation.

When the terminal leads out over a horizontal surface (ground, terrace), a minimum distance of 0.30 m must be respected between the base of the terminal and this surface.

**Recommendations**

Respect the max authorised lengths (figure 21, page 22).

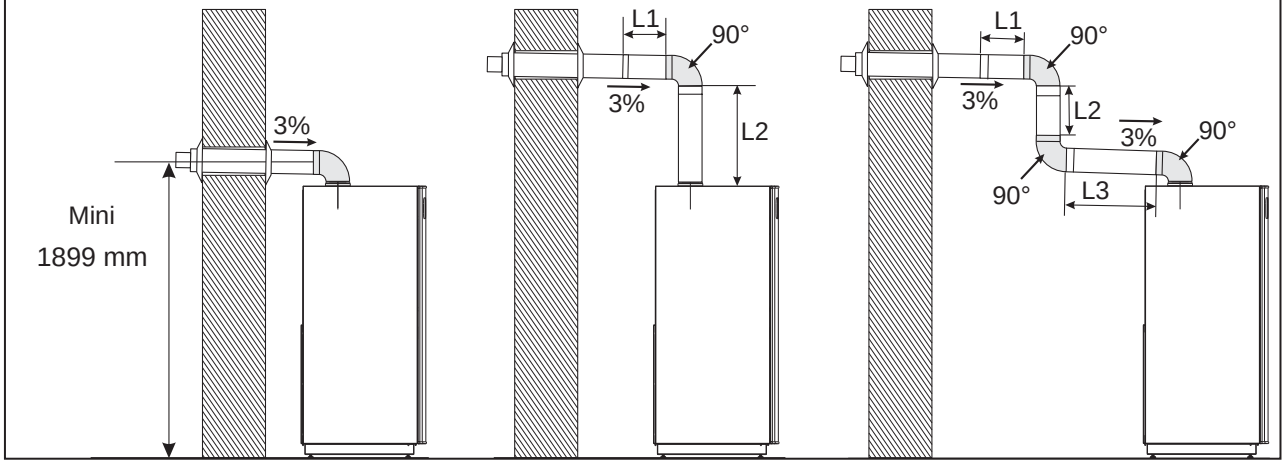
- Horizontal sections must be avoided on the evacuation pipes.
- Respect a minimum slope of 3% downwards and towards the boiler.
- Make sure that the air intake and smoke exit circuits are perfectly sealed.

**Mounting the room-sealed pipe**

Plug the different elements into each other (terminal, pipe, elbow, etc.). Coat the seal with liquid soap to make it easier to plug in.

- Adapt the pipe length.
- Use long extensions to limit the number of junction pieces.
- Refer to the supplier's instructions.
- Determine the boiler's position in relation to the suction pipe output.
- Drill a hole 150 mm in diameter in the wall
- Insert the pipe assembly into the hole in the wall and connect it to the boiler's adaptor, making sure it is sealed.
- Seal the pipe terminal into the wall using polyurethane foam to enable it to be removed if necessary.
- Provide a telescopic element to enable the smoke outlet to be removed during maintenance operations.

**C13 type pipe connection**

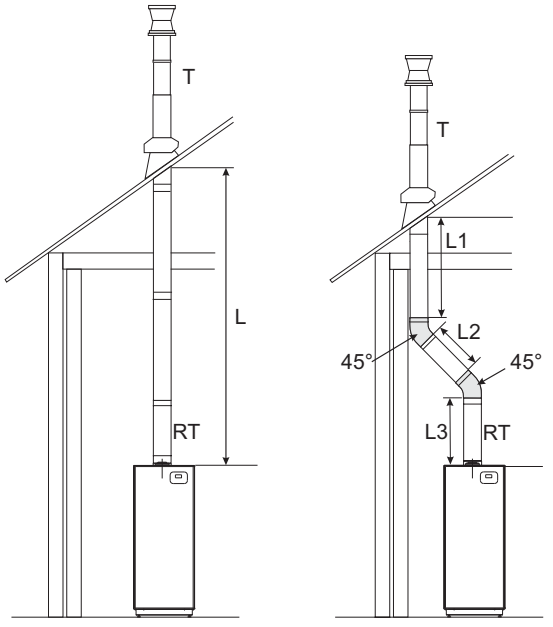


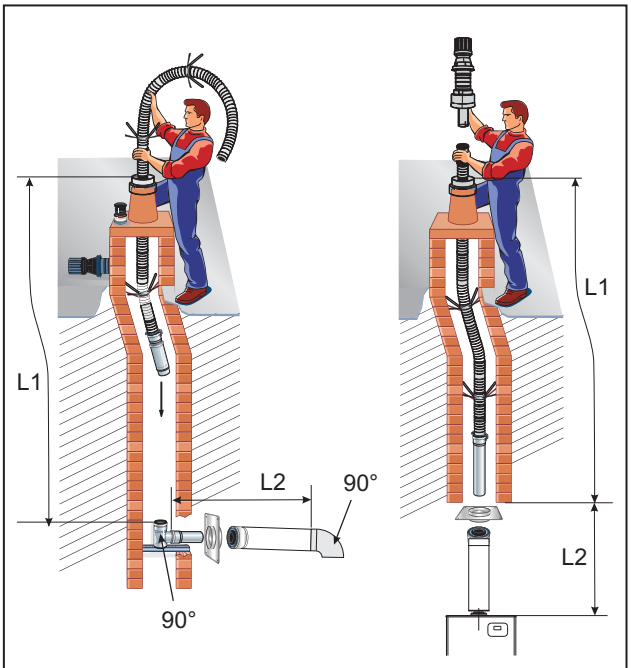

¤ **90° elbow** = 1 m of straight pipe. ¤ **45° elbow** = 0.5 m of straight pipe.
Existing evacuation pipe.
¤ **45° offset** = 0.5 m of straight pipe. ¤ **30° offset** = 0.3 m of straight pipe.

**Maximum straight line length** = 11 m (excluding terminal)
This length must be reduced by 1 m per 90° elbow and 0.5 m per 45° elbow.
Example of C13 type connection with 3 90° elbows: L1 + L2 + L3 + (3 x 1 m) ≤ 11 m.
Example of C33 type connection with 2 45° elbows: L1 + L2 + L3 + (2 x 0,5 m) ≤ 11 m .
Example of C33 type connection with Rénolux system:
¤ entry into wall with 2 90° elbows and 2 30° offsets: L1 + L2 + (2 x 1 m) + (2 x 0,3 m) ≤ 11 m.
¤ entry into wall with 2 30° offsets: L1 + L2 + (2 x 0,3 m) ≤ 11 m.

**RT** - Telescopic pipe. **T** - terminal (max 1 m).

**C33 type pipe connection**




Rénolux system
for adaptation to the existing evacuation pipe.

*figure 21 - Connection possibilities (C13 and C33 type)*

### 2.8.2 Concentric vertical pipe (C33 type)

**Regulations**

The roof terminal must be placed at least 0.40 m away from any opening windows and 0.60 m away from any ventilation air intake openings.

**Recommendations**

Respect the max authorised lengths (figure 21).

- Make sure that the air intake and smoke exit circuits are perfectly sealed.

**Mounting the suction pipe:**

- Plug the different elements into each other (terminal, pipe, elbow, etc.). Coat the seal with liquid soap to make it easier to plug in.
- Adapt the pipe length.
- Use long extensions to limit the number of junction pieces.
- Refer to the supplier's instructions.
- Provide a telescopic element to enable it to be removed during maintenance operations.

**Rénolux system for adaptation to the existing evacuation pipe.**

The Rénolux system enables connection to the boiler's suction pipe.

The Rénolux system includes the terminal, the Ø 80 flexible hose, the adaptation and sealing parts and the finishing plate.

The chimney pipe's internal dimension must be at least equal to 140 mm in diameter or side.

Check the pipe's seal and range.

☞ **Cleaning the evacuation pipe before installation. The chimney must be cleaned to remove all imperative and soot that may damage the appliance.**

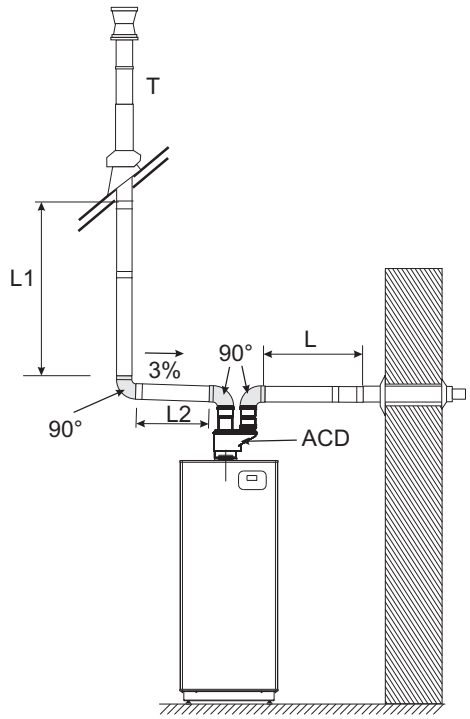
Make sure that the evacuation pipe's intake and outlet connections are perfectly sealed.

### 2.8.3 Separate air intake and smoke evacuation pipes (C53 type)

The air intake and combustion product evacuation terminals must not be installed on walls opposite the building.

The smoke pipes must be protected against all mechanical impact.

**C53 type pipe connection**




**Maximum straight line length** = 11 m
(excluding terminal).
This length must be reduced by 1 m per 90° elbow and 0.5 m per 45° elbow.

*Connection example:*
With 2 90° elbows: L1 + L2 + (2 x 1 m) ≤ 11 m.
With 1 90° elbow: L + (1 x 1 m) ≤ 11 m.

**ACD** - Separate pipe adaptor 073428.
**T** - terminal (max 1 m).

***figure 22 - Connection possibilities (C53 type)***

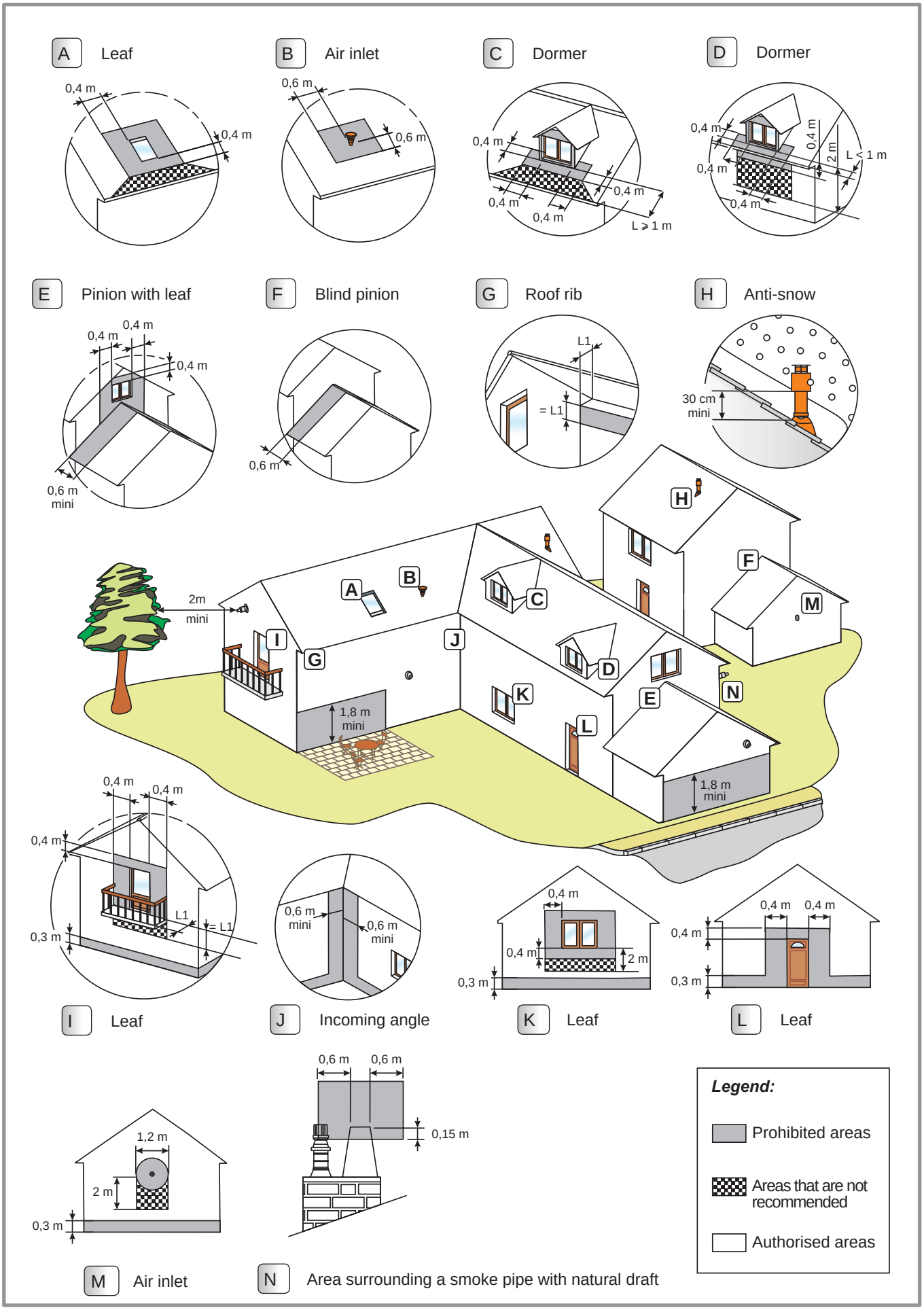



*figure 23 - Terminal location rules for leakproof gas boilers (C13, C33, C53)*

## 2.9 Refrigerant connections

☞ **This appliance uses the refrigerating fluid R410A.**

Respect the legislation for handling refrigerating fluids.

### 2.9.1 Rules and precautions

• After every intervention on the refrigeration circuit and before final connection, take care to replace the plugs in order to avoid any pollution from the refrigeration circuit.

**• Minimum necessary tools**

- Set of manometers (*Manifold*) with hoses exclusively reserved for HFCs (Hydrofluorocarbons).
- Vacuum gauge whith isolation valves.
- Vacuum pump specially for HFCs (use of a traditional vacuum pump is authorized if, and only if, it is fitted with a non-return valve on the suction side).
- Flaring tool.
- Pipe-cutter.
- Deburring tool.
- Wrenches.
- Refrigerant gas leak detector certified (sensitivity 5g/year).

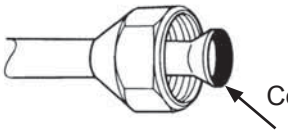
☞ **Provision on using tools that have been in contact with HCFCs (R22 for example) or CFCs.**

☞ **The manufacturer declines any liability with regard to the guarantee if the above instructions are not observed.**

**• Tube expanders (flared connectors)**

☞ **Lubrication with mineral oil (for R12, R22) is not allowed.**

- Only lubricate with polyolester refrigerating oil (POE). If POE oil is not available, fit without oil.



Coat the flared surface with **refrigerating oil POE**.

**Do not use mineral oil.**

**• Brazing on the refrigerating circuit (if required)**

- Silver brazing (40% minimum recommended).
- Brazing with a dry Nitrogen stream only.

• To eliminate the swarf from the pipes, use dryNitrogen to avoid introducing humidity that can harm the operation of the appliance. In general, take all precautions to avoid humidity penetrating into the appliance.

• Thermally insulate the gas and liquid pipe to avoid all condensation. Use insulating sleeves that resist temperatures of over 90°C. In addition, if the level of humidity where the refrigerating pipes risks exceeding 70%, protect them with insulating sleeves. Use a 15 mm thicker sleeve if the humidity reaches 80%, and a 20 mm thicker sleeve if the humidity exceeds 80%. If the recommended thicknesses are not respected in the conditions described above, condensation will form on the surface of the insulation. Finally, ensure that insulating sleeves are used that have a thermal conductivity equal to 0.045 W/mK or lower when the temperature is equal to 20°C. The insulation must be impermeable to resist the steam passing during the defrosting cycles (glass wool is prohibited).

### 2.9.2 Refrigerating connections

The outdoor unit must be connected to the hydraulic unit **only** with new copper pipes and connections (refrigeration quality), insulated separately.

Respect the diameters of pipe and the authorised lengths (figure 26).

If the refrigeration connections are exposed to weathering or UV- and the insulation is not strong, it is necessary to provide protection.

**The minimum length of the cooling links if 5 m for correct operation.**

The appliance's warranty will be void if it is applied with cooling links that are shorter than 5 m.

Handle the pipes and pass them through the walls withthe protection plugs in place.

### 2.9.3 Flaring

- Cut the tube with a tube cutter to the required length without deforming it.
- Carefully deburr while holding the tube downwards to avoid introducing swarf into the tube.
- Remove the flare nut from the connector on the valve to be connected and fit the tube into the nut.
- Flare it leaving the tube protruding fro the expandable flaring tool.
- After flaring, check the state of the journal (**L**). It must not be scratched or signs of splitting. Also check the dimension (**B**).

### 2.9.4 Forming the refrigerant tubes

The refrigerating tubes must only be formed using a bending machine or a bending spring in order to avoid any risks of crushing or splitting.

☞ **Warning!**

• Remove the insulation locally to bend the tubes.

• Do not bend the copper to an angle of more than 90°.

• Do not bend the tubes more than 3 times at the same position otherwise this can cause the pipe to split (hardening of the metal).

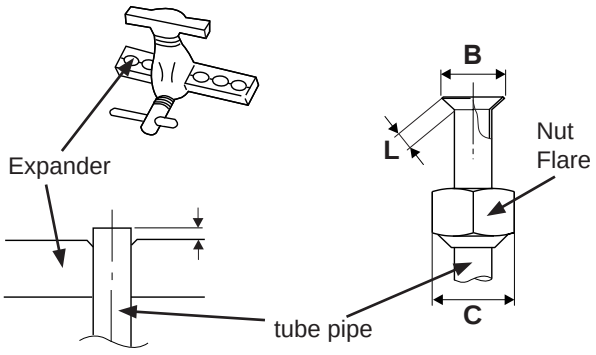
### 2.9.5 Connecting the flare connections

☞ **Connections must be made the day of the filling the installation with gas (see para. 2.10, page 28).**

☞ **Pay special attention to the position of the tube aligned with its connector to avoid damaging the thread. A correctly aligned connector can be fitted easily by hand without much force being required.**

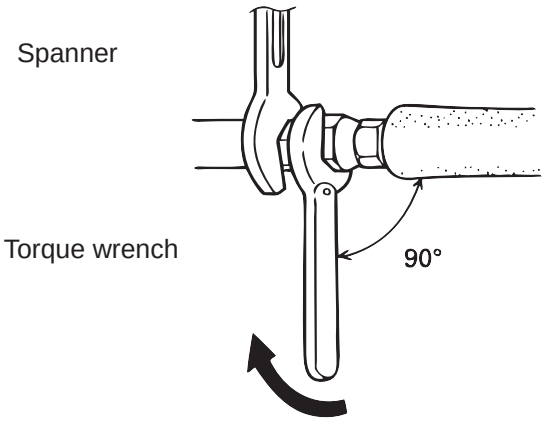
☞ **The refrigerating circuit is very sensitive to dust and humidity, check that the zone around the connection is dry and clean before removing the plugs that protect the refrigerating connectors.**

- Remove the plugs from the pipes and refrigerating connections
- Place the tube in front of the flare connector and screw on the nut by hand, holding the connector with a spanner, until contact is made.
- Respect the tightening torques defined.




| ø pipe | Dimensions in mm | | |
|---|---|---|---|
| | L | B $^{0}/_{-0,4}$ | C |
| 6.35 (1/4") | 1.8 to 2 | 9.1 | 17 |
| 9.52 (3/8") | 2.5 to 2.7 | 13.2 | 22 |
| 12.7 (1/2") | 2.6 to 2.9 | 16.6 | 26 |
| 15.88 (5/8") | 2.9 to 3.1 | 19.7 | 29 |

*figure 24 - Flaring for flared connections*




| Designation | Tightening torque |
|---|---|
| Flare nut 6.35 mm (1/4") | 14 to 18 Nm. |
| Flare nut 9.52 mm (3/8") | 33 to 42 Nm. |
| Flare nut 12.7 mm (1/2") | 50 to 62 Nm. |
| Flare nut 15.88 mm (5/8") | 63 to 77 Nm. |
| Plug (A) 3/8", 1/4" | 20 to 25 Nm. |
| Plug (A) 1/2" | 25 to 30 Nm. |
| Plug (A) 5/8" | 30 to 35 Nm. |
| Plug (B) 3/8", 5/8" | 10 to 12 Nm. |
| Plug (B) 1/2", 1/4" | 12.5 to 16 Nm. |

*figure 25 - Tightening torques*

| Heat pump model | | alféa hybrid gas single phase | | alféa hybrid gas three phase | |
|---|---|---|---|---|---|
| | | gas | liquid | gas | liquid |
| Outdoor unit connectors | | 5/8" | 3/8" | 5/8" | 3/8" |
| Refrigerating connections | Diameter | (D1) 5/8" | (D2) 3/8" | (D1) 5/8" | (D2) 3/8" |
| | Minimum length (L) | 5 | | 5 | |
| | Maximum length (L) | 20 * | | 15 * / 20 ** | |
| | Difference in height (D) | 20 * | | 15 * / 20 ** | |
| Hydraulic module connectors | | 5/8" | 3/8" | 5/8" | 3/8" |

*: without additional charge of R410A

** : Taking into account the potential additional charge of refrigerating fluid R410A (see § 2.10.3, page 30)

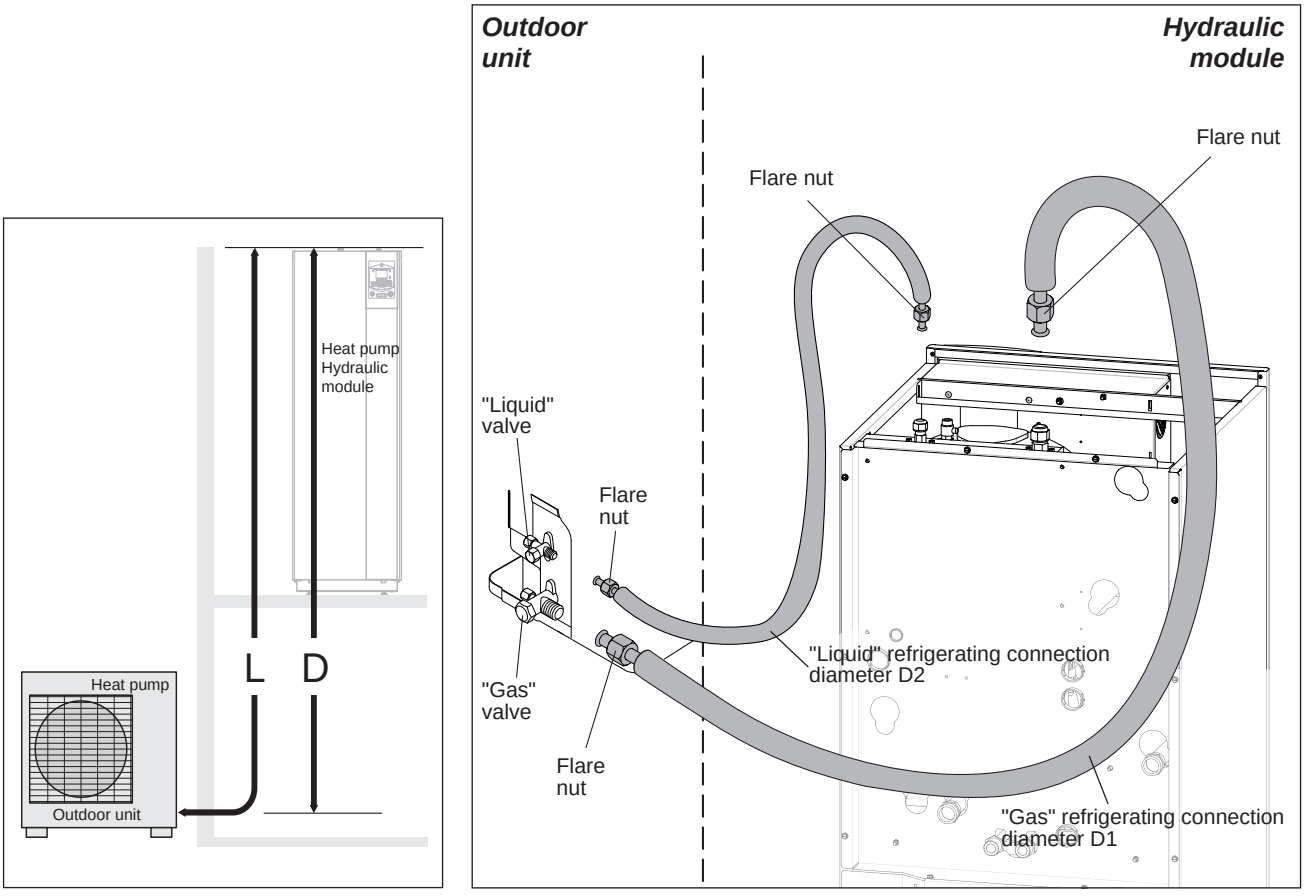


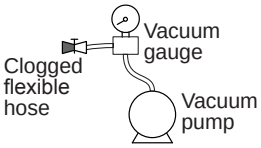

*figure 26 - Refrigerating link connection (accepted diameters and lengths)*

## 2.10 Filling the installation with gas

- ☞ **This operation is reserved for installers familiar with the legislation for handling refrigerants.**
- ☞ **Creating a vacuum with a vacuum pump is essential (see ANNEX 1).**
- ☞ **Never use equipment used beforehand with any refrigerant other than a HFC.**
- ☞ **Remove the refrigerant circuit caps only when building the refrigerant connections.**
- ☞ **Unfavorables conditions :**
  **- If the outdoor temperature is between +5 and +10 °C,** it's obliged to have a vacuum gauge for validate the pump down operation and use method 3 empty (see ANNEX 2).
  **- If the outdoor temperature is below +5 °C**, it's strongly not recommended to do the filling the installation with gas.

**ANNEX 1**

**Method for calibration and control of a vacuum pump**




- Check the oil level of the vacuum pump.
- Connect the vacuum pump with the vacuum gauge according to the scheme.
- Pump down during 3 minutes.
- After 3 minutes, the pump reaches its threshold value and the vacuum gauge needle does not move.
- Compare the obtained pressure with the value of the table. Depending on the temperature, this pressure must be less than the value indicated in the table.

  => If it's not the case, replace the gasket, flexible hose or the pump.

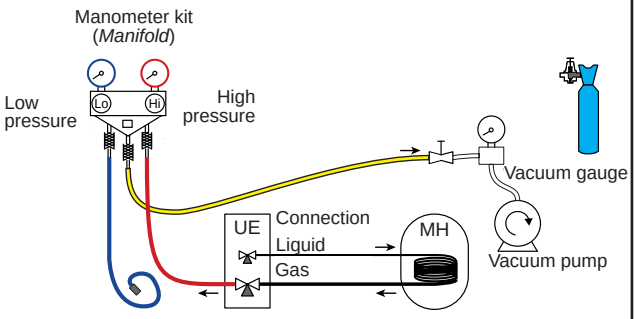
| T °C | 5°C<T<10°C | 10°C<T<15°C | 15°C < T |
|---|---|---|---|
| Pmax<br>- bar . .<br>- mbar | . . . 0.009 . . .<br>. . . . . 9 . . . . . | . . . 0.015 . . .<br>. . . . 15 . . . . | . . . 0.020. . .<br>. . . .20 . . . . |

**ANNEX 2**

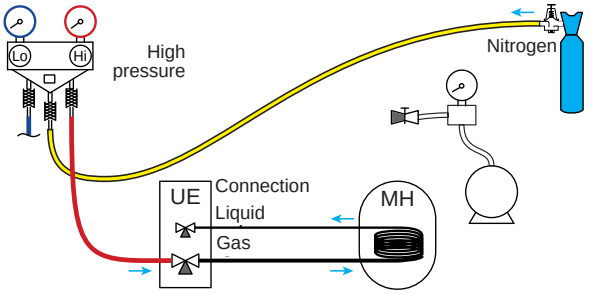
**Method 3 empty**

- Connect the high pressure hose to the *Manifold*, ("Gas" connection). A valve must be mounted on the flexible hose from the vacuum pump in order to isolate it.

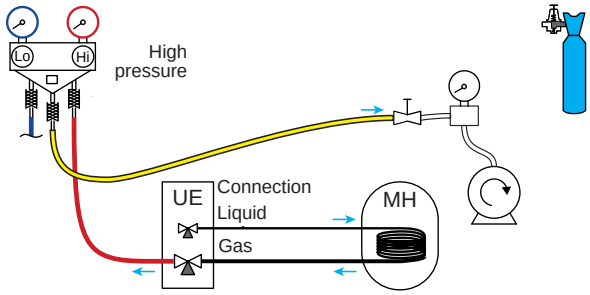
**a)** Pump down to the desired value (see table ANNEX 1),




**b**) Stop the vacuum pump, close the valve end of the service hose (yellow). Connect the hose to the expansion valve of the nitrogen bottle, inject 2 bars, close the flexible hose valve,




**c)** Reconnect the flexible hose to the vacuum pump, turn on and gradually open the hose valve.




**d)** Repeat this at least three times.

- ☞ **<u>Reminder</u> : It's strictly forbidden to perform these operations with refrigerant.**

### 2.10.1 Commissioning procedure

**• Check before connecting**

**<u>"Gas" connection control (large diameter)</u>.**

- Connect the "Gas" connection to the outdoor unit.
- Blow dry nitrogen into the "Gas" connection and observe this end:

  · If water or impurities emerge, use a new refrigerant connection.

  · Otherwise, perform the flare and connect immediately the refrigerant connection to the hydraulic unit.

**<u>"Liquid" connection control (small diameter)</u>.**

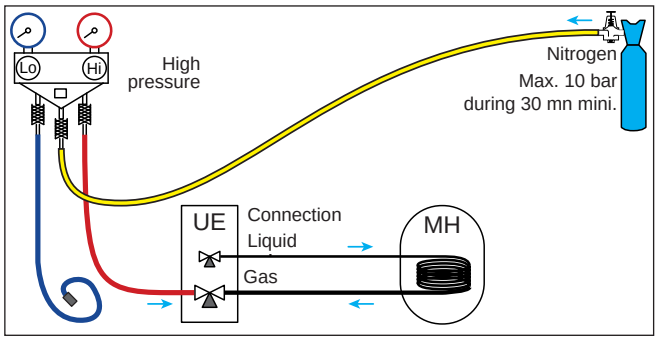
- Connect the "Liquid" connection to the outdoor unit.
- Blow dry nitrogen into **"Gas" connection – condensor - "Liquid" connection** assembly and Observe this end (Outdoor unit side).

  · If water or impurities emerge, use a new refrigerant connection.

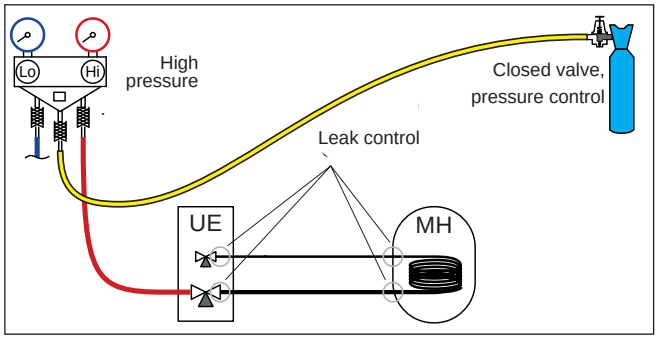
  · Otherwise, perform the flare and connect immediately the refrigerant connection to the outdoor unit.

• **First seal test**

- Remove the protective plugs (**B**) from the charging hole (*Schrader*) in the "Gas" valve (large diameter).
- Connect the high pressure hose to the *Manifold*.
- Connect the bottle of nitrogen to the *Manifold* (Use only dry nitrogen type U)
- Pressurize the refrigerant circuit with nitrogen (10 bar maximum) ("Gas" connection – condensor - "Liquid" connection assembly).
- Let the circuit under pressure for 30 minutes.



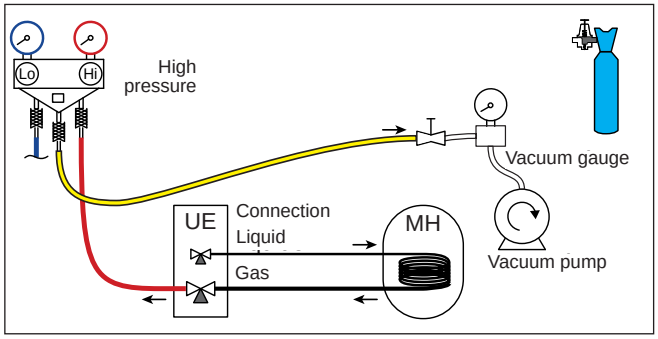

- Search for leaks with a leak detector product, repair and repeat the test.




- When the pressure is stable and leakage is excluded, drain nitrogen letting a pressure above atmospheric pressure (0,2 to 0,4 bar).

• **Creating a vacuum and filling the refrigeration connections with gas**

- If necessary, calibrate the *Manifold* gauge to 0 bar. Adjust the vacuum gauge to the atmospheric pressure (around 1013 mbar)
- Connect the vacuum pump to the *Manifold*. Connect a vacuum gauge if the vacuum pump is not equipped.




- Create a vacuum until the residual pressure* in the circuit falls below the value given in the following table. (* measured with the vacuum gauge)

| T °C | 5°C<T<10°C | 10°C<T<15°C | 15°C < T |
|---|---|---|---|
| **Pmax - bar . . - mbar** | . . . 0.009 . . . . . . 9 . . . . . | . . . 0.015 . . . . . . 15 . . . . | . . . 0.020 . . . . . .20 . . . . . |

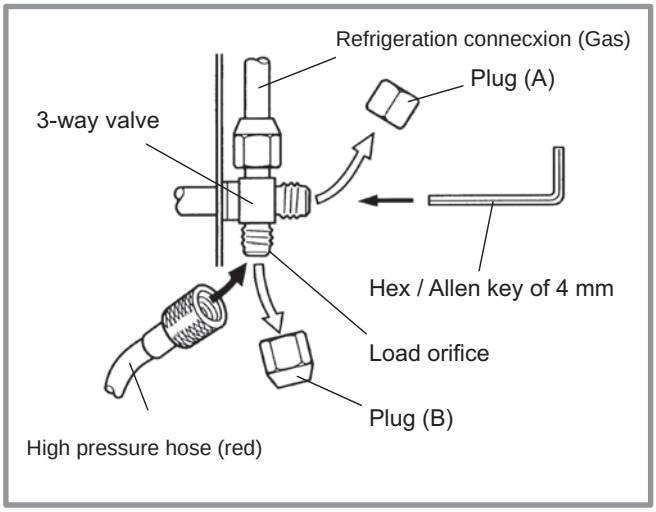



*figure 27 - Connexion of the hose on the "Gaz" valve*

- Let the pump continue to operate for another 30 minutes minimum after reaching the vacuum.
- Close the *Manifold* valve and then stop the vacuum pump **without disconnecting any of the hoses in place**.

☞ **If the outdoor temperature is between +5 and +10 °C, use method 3 empty (see ANNEX 2).**

- Remove the access plugs (**A**) from the valve controls.
- If an additional charge is requires, add the additional charge before filling the hydraulic unit with gas. Please refer to the para. "Additional charge (outdoor three phase unit)", page 30.
- First of all fully open the "Liquid" valve (small) and then the "Gaz" valve (large) using a hex key (counterclockwise direction) without forcing excessively against the stop.
- Remove the hose rapidly to the *Manifold*.
- Refit the 2 original caps (be sure they are clean) and tighten them to the recommended tightening torque. The sealing is performed in the caps only metal to metal.

The outdoor unit does not contain any additional refrigerant, enabling the installation to be purged.

Flushing is strictly forbidden.

### 2.10.2 Sealing test

Once the refrigeration circuit has been gassed as described above, check that all the refrigeration connectors are gas-tigh (4 connectors).

The sealing test must be performed with an approved gas detector. If the flarings have been made correctly, there should be no leaks.

☞ **If there is a leak:**

- Bring the gas into the outdoor unit (pump down).
- Make the connection again.
- Repeat the commissioning procedure.

### 2.10.3 Additional charge (outdoor three phase unit)

| | *50 g of R410A per extra metre* | |
|---|---|---|
| Link length | 15 m | 20 m max. |
| Additional charge | None | 250 g |

The outdoor unit charge corresponds to the maximum distances between the external unit and the hydraulic module define in figure 26, page 27. If the distances are longer, you must make an additional charge of R410A. The additional charge depends, for each type of appliance, on the distance between the outdoor unit and the hydraulic module. The additional charge of R410A must only be added by a qualified specialist.

***• Additional charge example:***

An outdoor unit at a distance of 17 m from the hydraulic requires an additional charge of:

Additional charge = (17 – 15) x 50 = 100 g

The charge must be added after evacuation and before adding the gas to the hydraulic module, as follows:

- Disconnect the vacuum pump (yellow flexible hose) and in place connect a bottle of 410A **in the liquid drawing position**.
- Open the tap of the bottle.
- Drain the yellow flexible hose by loosening it slightly on the manifold side.
- Place the bottle on precision scales with a minimum of 10g. Note the weight.
- Carefully open the blue tap slightly and monitor the value displayed on the scales.
- As soon as the value displayed has dropped by the value of the calculated additional charge, close the bottle and disconnect it.
- Sharply disconnect the flexible hose from the appliance.
- Add the gas to the hydraulic module.

☞ **Warning!**

• Only use R410A!

• Only use tools that are adapted to the R410A (set of pressure gauges).

• Always add charge in liquid phase.

• Do not exceed the maximum length or difference in height.

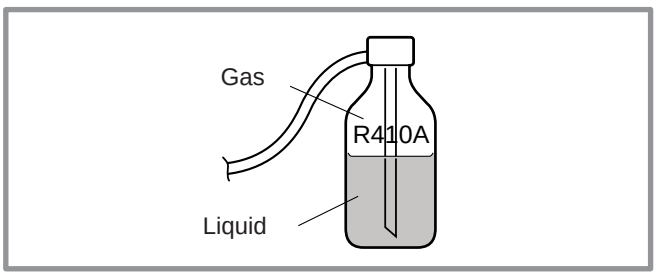



*figure 29 - Gas bottle R410A*

### 2.10.4 Collect the refrigerant fluid in the outdoor unit

Carry out the following procedures to collect the refrigerating fluid.

- 1- Place the Start/Stop switch in the 0 position (item **2**, figure 9, page 13).
- 2- Remove the front panel of the hydraulic module. Open the electrical cabinet. Move the DIP SW1 of the interface board to 1.
- 3- Place the Start/Stop switch in the 1 position (the green and red LEDs start to flash; 1s on / 1s off).
- 4-The outdoor unit starts in the cold mode for approximately 3 minutes after it is switched on. Close the liquid valve on the outdoor unit 1 minute after the outdoor unit is started.
- 5- Close the gas valve on the outdoor unit 1 to 2 minutes after closing the liquid valve, while the outdoor unit continues to turn.
- 6- Disconnect the electrical power supply.

Remarks:

- Check that the Start/Stop switch is in the 0 position before touching the DIP SW1.
- When the heat pump is operating, the collection operation may not be activated, even if the DIP SW 1 switch is moved to ON.
- Do not forget to return the DIP SW 1 switch to OFF at the end of the collection operation.
- If the collection operation fails, try the procedure again by turning off the machine and opening the "gas" and "liquid" valves. After 2 to 3 minutes repeat the collection operation.

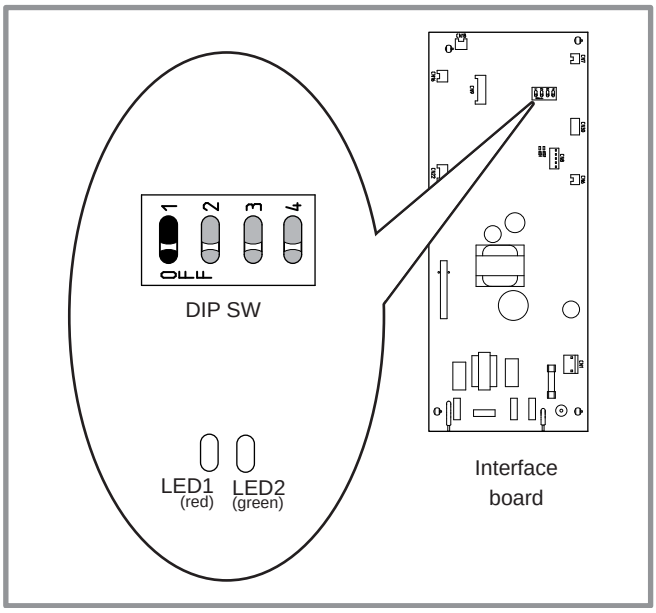



*figure 28 - Position of the DIP switches and the LEDs on hydraulic module interface board*

## 2.11 Connecting the heating circuit and the domestic circuit

### 2.11.1 General

The connection must comply with trade practices according to the regulations in force.

The heating circulation pump is integrated into the hydraulic module.

Connect the pipe of the central heating to the hydraulic module respecting the direction of the circulation.

The diameter of the pipe, between the hydraulic module and the heating manifold, must be at least equal to 1 inch (26x34 mm).

Calculate the diameter of the pipes in function of the flow rates and lengths of the hydraulic systems.

Tightening torque: 15 to 35 Nm.

Use union connectors to facilitate the removal of the hydraulic module.

Prefer the use of flexible connector hoses to avoid transmitting noise and vibrations to the building.

Connect the evacuations of the drain tap and the safety valve to the drain.

Check that the expansion system is operating correctly. Check the expansion circuit pressure (pre-inflation of 1 bar) and the calibration of the safety valve.

Reminder: Make the assembly impervious respecting trade practices in force for the plumbing work:

- Use suitable seals (fibre seals, O rings).
- Use Teflon or hemp tape.
- Use sealant (synthetic as required).

Reminder: The presence on the installation, of a disconnection function of the CB type, designed to avoid returns of heating water to the drinking water system, is required by articles 16.7 and 16.8 of the Typical Departmental Domestic Rules.

☞ **In certain installations, the presence of different metals may cause corrosion problems; in which case the formation of metal particles and sludge may be observed in the hydraulic circuit.**

☞ **In this case, it is preferable to use a corrosion inhibitor in the proportions recommended by its manufacturer.**

- Refer to the "Domestic hot water and heating treatment" section in our price catalogue.

☞ **It is also necessary to ensure that the water treated does not become aggressive.**

### 2.11.2 Rinsing the installation

Before connecting the hydraulic module to the installation, rinse the heating system correctly to eliminate the particles that could compromise the correct operation of the appliance.

Do not use solvents or aromatic hydrocarbons (petrol, diesel, etc.).

For older installations, fit a decanting pot of adequate capacity on the boiler return circuit and at the lowest point equipped with a drain, in order to collect and evacuate the impurities.

Add to the water an alkaline product and a dispersant.

Rinse the installation several times before final filling.

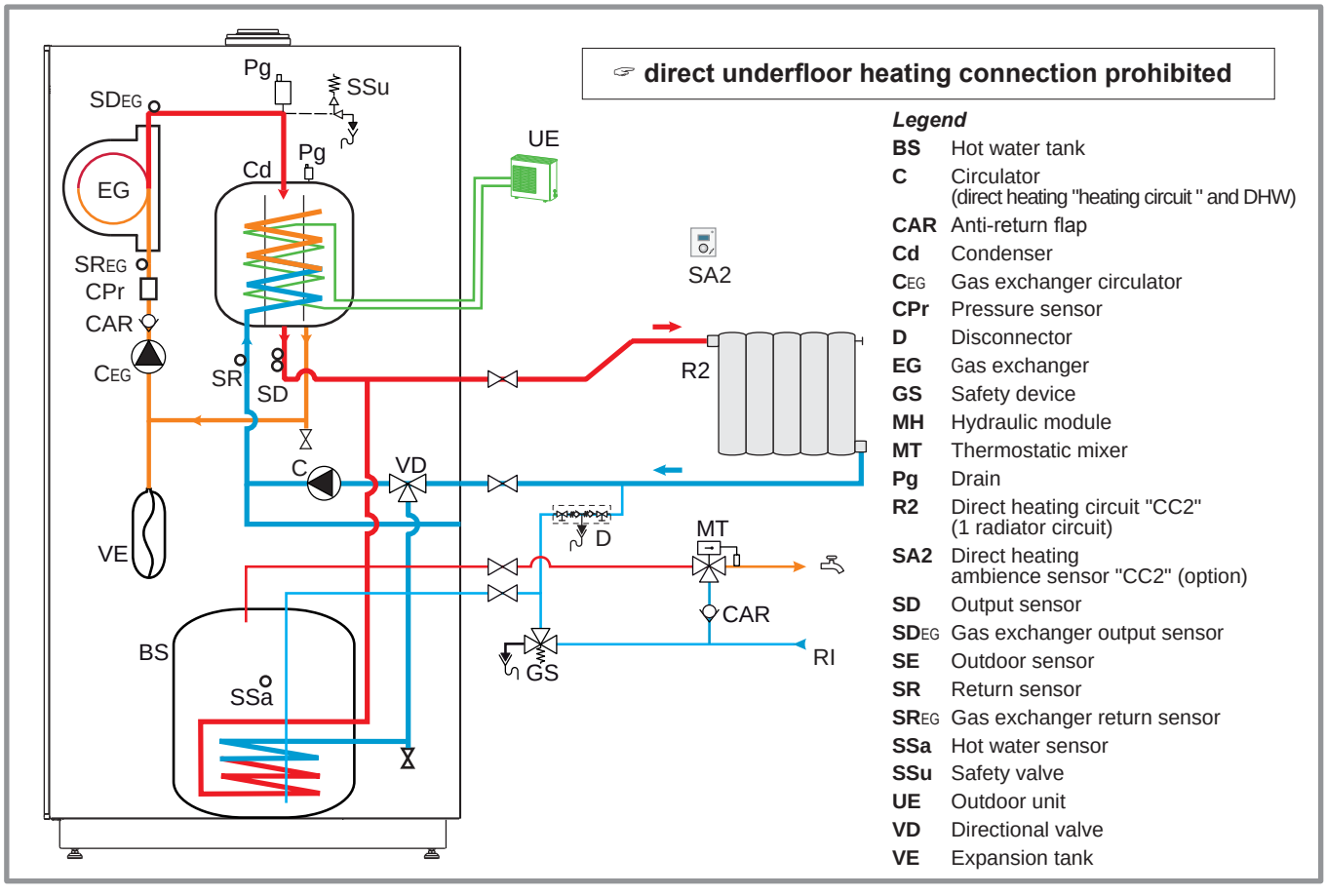



*figure 30 - Overall view of the electrical connections*

### 2.11.3 Filling and draining the installation

- Check the attachment of the pipes, that the connectors are tight and that the hydraulic module is stable.
- Check the direction of circulation of the water and that all of the valves are open.
- Fill the installation.
- Deactivate the non-return valves.
- Position the directional valve in intermediate position.
- When filling, do not operate the circulation pump, open all of the drains of the installation and the drains of the hydraulic module (**P** and **A**) to evacuate the air in the pipes.
- Close the drains and add water until the pressure of the hydraulic circuit reaches 1 bar.
- Check that the hydraulic circuit is drained correctly.
- Close the non-return valves.
- Check that there are no leaks.

☞ **The exact filling pressure is determined according to the installation's manometric head.**

### 2.11.4 Connection to an underfloor heating circuit

An underfloor heating circuit cannot be connected directly to the hybrid duo gas heat pump. The 2-circuit kit must be used (optional).

### 2.11.5 Connection to a fan coil circuit

For all heat pumps of more than 11 kW, a buffer tank has to be fitted to this circuit (minimum capacity: 50 litres).

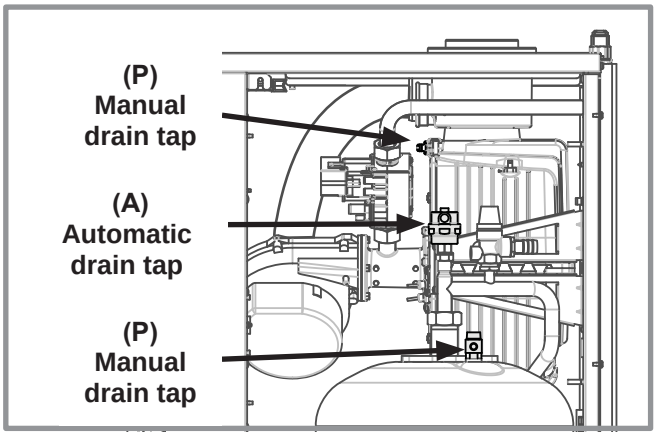



*figure 31 - Hydraulic module drain taps*

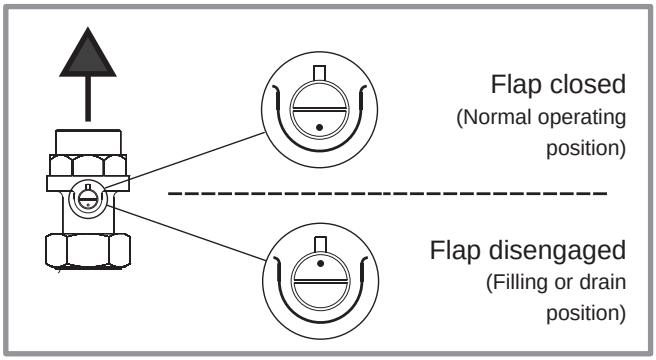



*figure 32 - Non-return valve*

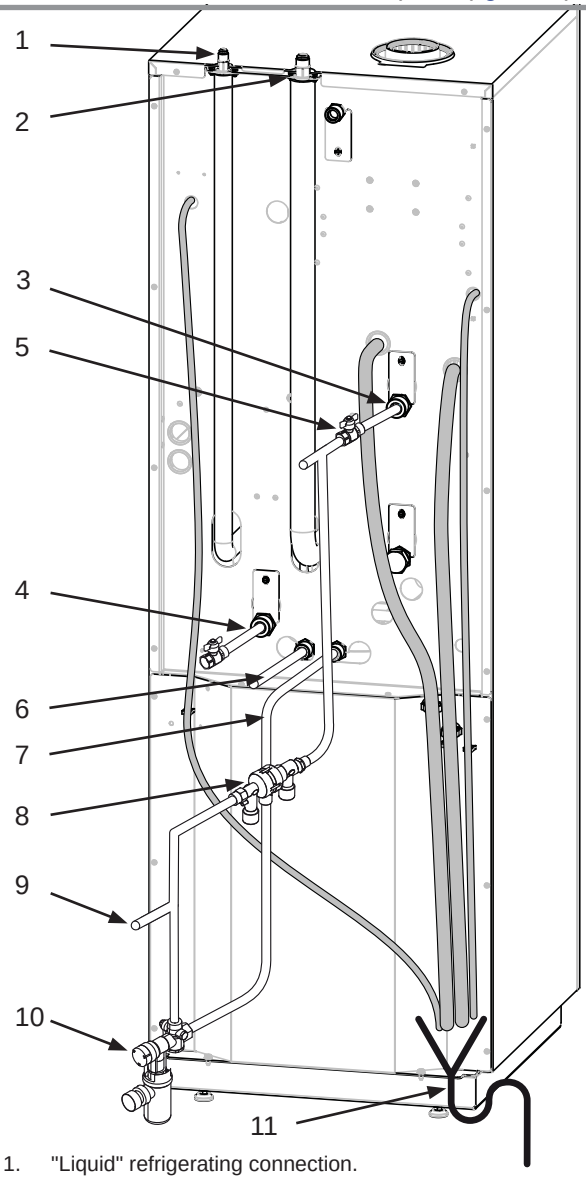
### 2.11.6 Connection to the domestic circuit

- Place a safety group with a valve calibrated to 7 bar on the cold water inlet, and connect an evacuation pipe leading to the drain. Run the safety group according to the manufacturer's recommendations.
- Connect the safety valve evacuation to the drain.

It is recommended that the hot water outlet is fitted with a thermostatic mixing valve.

## 2.12 Condensate evacuation

A condensate recovery system is integrated into the appliance. It must be connected to the drain via a siphon. (figure 33).




1. "Liquid" refrigerating connection.
2. "Gas" refrigerating connection.
3. Heating return (1 circuit).
4. Heating outlet (1 circuit).
5. Stop valve (not provided).
6. DHW outlet (domestic hot water).
7. DCW inlet (domestic cold water).
8. Disconnector (not provided).
9. Filling.
10. Safety device (not provided).
11. Connections to drain with siphon.
    - Drain evacuation.
    - Safety valve evacuation.
    - Condensate evacuation (acid condensate resistant pipe).

*figure 33 - Connections*

## 2.13 Gas change

☞ **WARNING**

**The gas generator is preset in the factory to G31 propane gas, domestic supply pressure: 37 mbar.**

- For use with G25 natural gas, domestic supply pressure: 25 mbar (Groninguen gas type), it is compulsory to **remove** the diaphragm on the gas valve outlet.
- For use with G20 natural gas, domestic supply pressure: 20 mbar, it is compulsory to **replace** the diaphragm on the gas valve outlet (optional conversion kit).

This operation must be carried out by a qualified professional.

- Dismantle the connector on the gas valve outlet.
- Remove the diaphragm in place and replace it with the model indicated in the table below.
- Position the diaphragm in the gasket's throat.
- Restore the connector.
- Carry out a combustion check (see para. "Setting the combustion parameters during a gas check", page 44).

| Gas | Diaphragm marker | $CO_2$ at min | $CO_2$ at max |
|---|---|---|---|
| **G 20** | 20 | 8 to 9 % | 8.5 to 9.5 % |
| **G 25** | no diaphragm | 8 to 9 % | 8.5 to 9.5 % |
| **G 31** | conical | 9.5 to 10.5 % | 10 to 11 % |

Paste the gas setting label provided with the conversion kit.

## 2.14 Connection of the fuel supply

The appliance must be connected to the gas distribution network according to current regulations:

The pipe diameter will be calculated according to the network's rates and pressure.

Place a gas stop tap near the boiler.

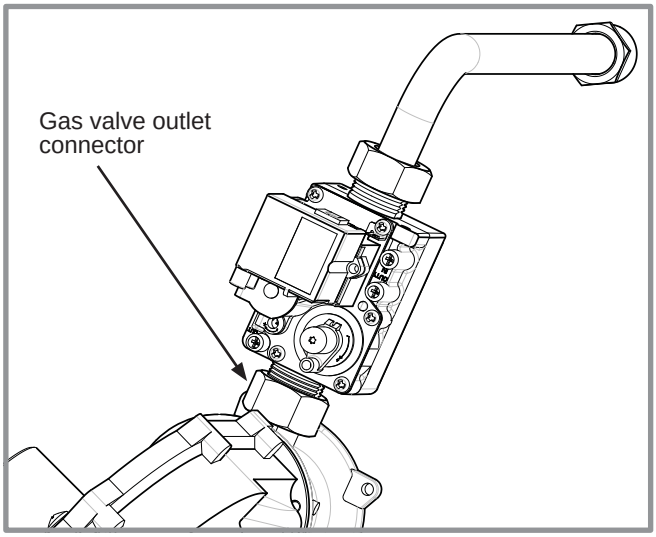



*figure 34 - Access to the diaphragm*

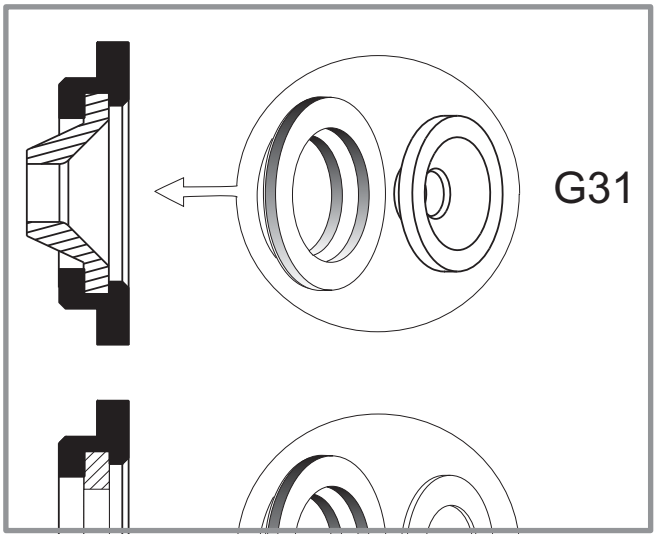



*figure 35 - Gas valve diaphragm*

## 2.15 Electrical connections

Before carrying out any work, ensure that the general electrical power supply is switched off.

### 2.15.1 Characteristics of the electrical power supply

The electrical installation must comply with the regulations in force:

- France: standard NF C 15-100.

The electrical connections will only be made when all of the other assembly operations (attachment, assembly,...) have been carried out.

☞ **Warning!**

The contract taken out with the energy supplier must be sufficient to cover the power of the heat pump as well as the sum of the power requirements of all of the appliances likely to be operated at the same time. If the power supply is insufficient, check with your energy supplier the value of the power supply defined in your contract.

Never use electrical sockets for the power supply.

The heat pump must be powered by special lines that are protected from the electrical housing by bipolar circuit breakers dedicated to the heat pump, curve D for the outdoor unit, (see tables page 35).

The electrical installation must be equipped with a differential protection of 30 mA.

This appliance is provided to operate under a nominal voltage of 230 V (single phase) or 400 V (three phase), +/- 10%, 50 Hz.

### 2.15.2 General remarks on the electrical connections

It is essential that the phase-neutral polarity is respected for the electrical connection.

Tighten the screws of the terminal blocks correctly. Failure to tighten sufficiently may cause overheating, faults or even fires.

Clamp the cables with stuffing glands to avoid any accidental disconnection of the conductive wires.

The earth connection and its continuity must be ensured.

**• Connection to the spring terminal blocks:**

***Rigid wire*** (A)

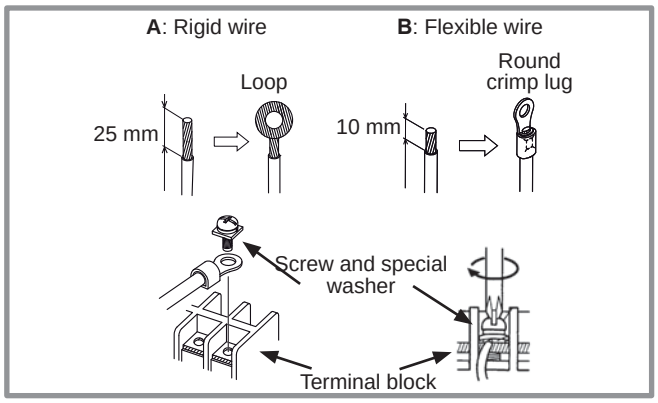
Rigid wire is always preferable for fixed installations, especially in buildings.

- Always choose a wire that complies with current standards (NF C 15-100 in particular).
- Bare the end of the wire over a length of around 25 mm.
- With round nosed pliers, make a loop with a diameter that corresponds to the terminal's tightening screws.
- Tighten the terminal screw on the loop very firmly.

***Flexible wire*** (B)

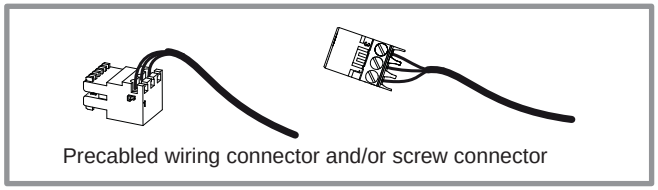
H07RNF (or higher quality) flexible wire can be used with a few precautions:

- Strip the end of the wire over a length of around 10 mm.
- Using crimping pliers, place a round crimp lug with a diameter corresponding to the terminal screws at the end of the wire.
- Tighten the crimp lug on the terminal firmly with a screwdriver. The use of flexible wires without round crimp lugs is not recommended.
- Always protect the cables when run into the cable clamps with a PVC protective sheath of a thickness between 0.5 and 1 mm.




**• Connection to the regulation boards:**

- Remove the corresponding connector and make the connection.



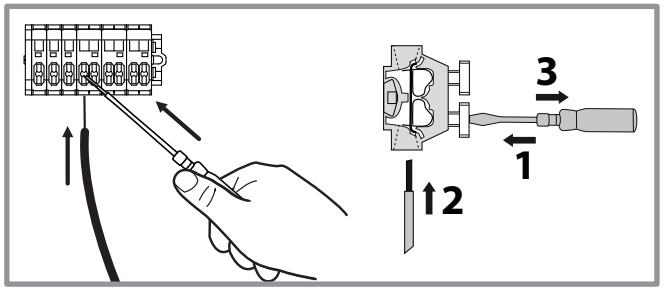

**• Connection to the spring terminal blocks:**

***Rigid wire:***

- Strip the end of the wire over a length of around 10 mm.
- Slide the wire into the orifice provided.
- Push the spring with a screwdriver so that the wire enters the cage.
- Remove the screwdriver and check that the wire remains blocked in the cage, and pull it to check.

***Flexible wire:***

- Use bits and proceed in the same way as before.



### 2.15.3 Overall view of the electrical connections

The electrical diagram of the hydraulic module is detailed in figure 63, page 66.

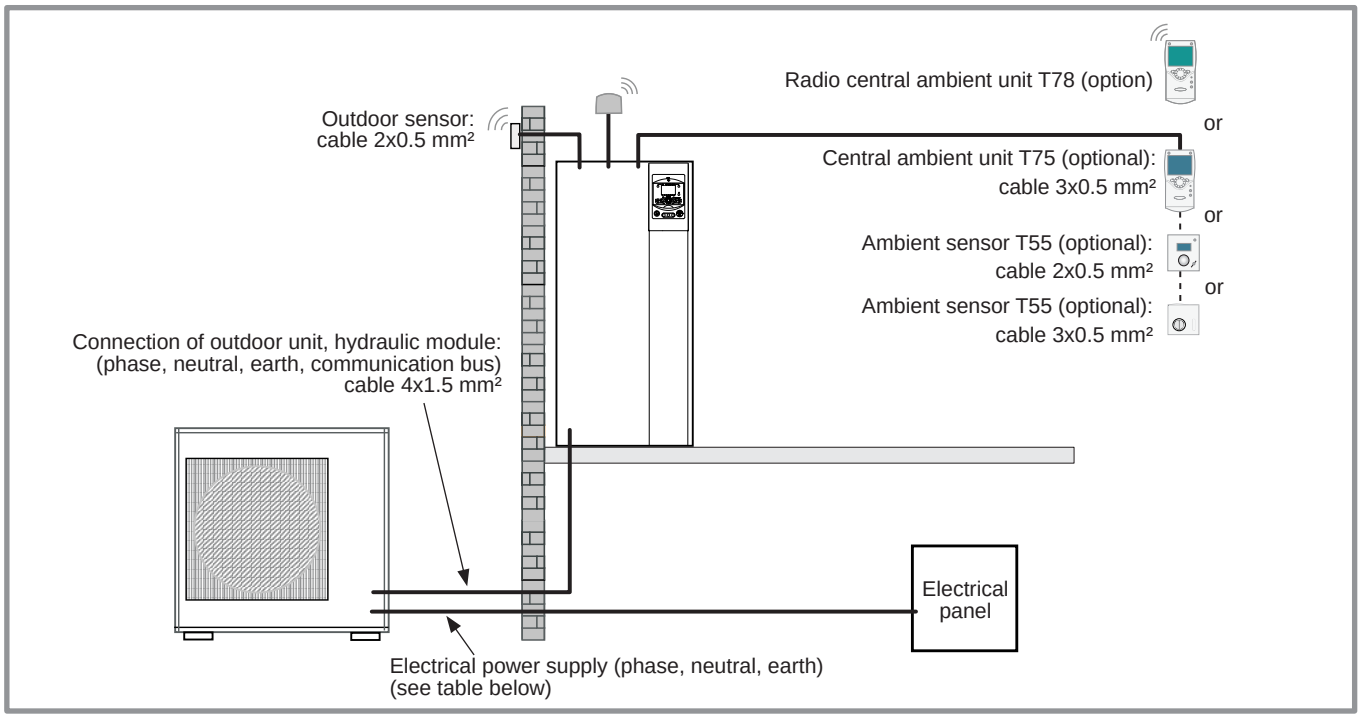



*figure 36 - General diagram of the electrical connections for a simple installation (1 heating circuit)*

### 2.15.4 Cross section of the cable and protection rating

The cross sections of the cables are provided for information only and do not dispense the electrician from checking that these cross sections correspond to the requirements and satisfy the standards in force.

• **Power supply of the outdoor unit:**

| *Single phase heat pump* | | *230 V - 50 Hz electric power supply* | |
|---|---|---|---|
| *Model* | *Absorbed max. power* | *Connection cable (live, neutral, earth)* | *D curve circuit breaker calibre* |
| hybrid duo 10 | 3910 W | 3 x 2.5 mm² | 20 A |
| hybrid duo 13 | 4600 W | 3 x 4 mm² | 25 A |
| hybrid duo 16 | 5980 W | 3 x 6 mm² | 32 A |
| *Three phase heat pump* | | *400 V - 50 Hz electric power supply* | |
| *Model* | *Absorbed max. power* | *Connection cable (3 live, neutral, earth)* | *D curve circuit breaker calibre* |
| hybrid duo 11 | 5865 W | 5 x 2.5 mm² | 20 A |
| hybrid duo 14 | 6555 W | | |
| hybrid duo 16 | 7245 W | | |

• **Inter-connection between the outdoor unit and the hydraulic module:** The hydraulic module is powered by the outdoor unit, via a cable 4x1.5 mm² (phase, neutral, earth, communication bus).

☞ **Before carrying out any work, ensure that the general electrical power supply is switched off.**

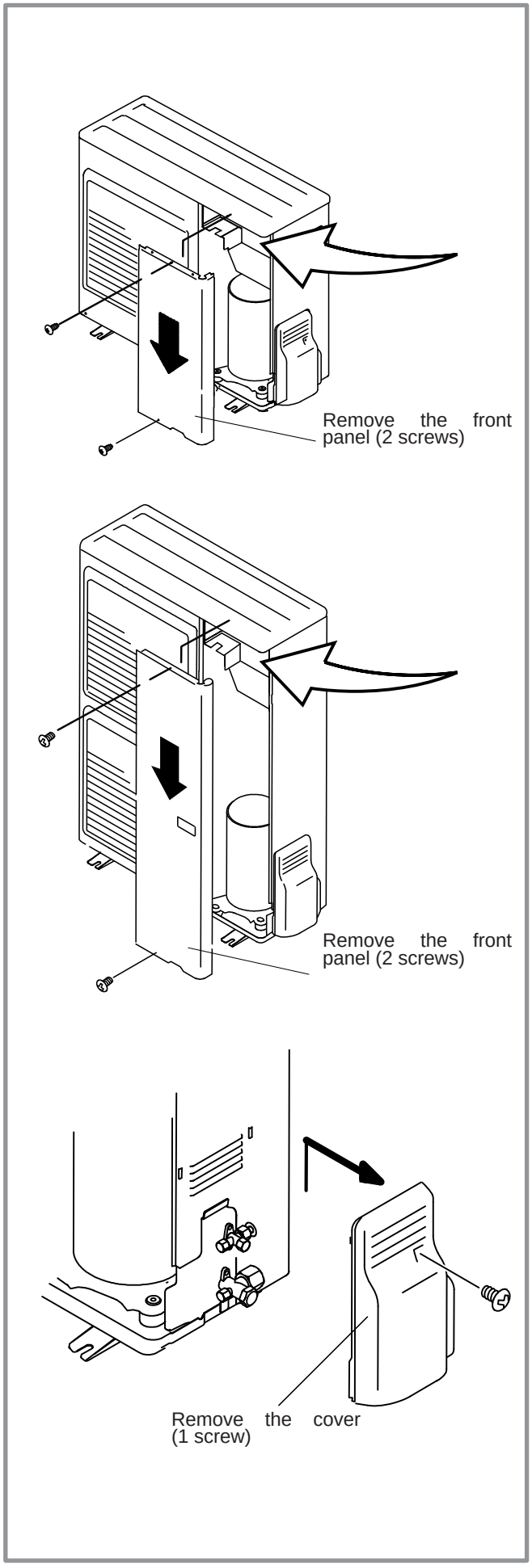



figure 37 - Access to the terminal block of the outdoor unit

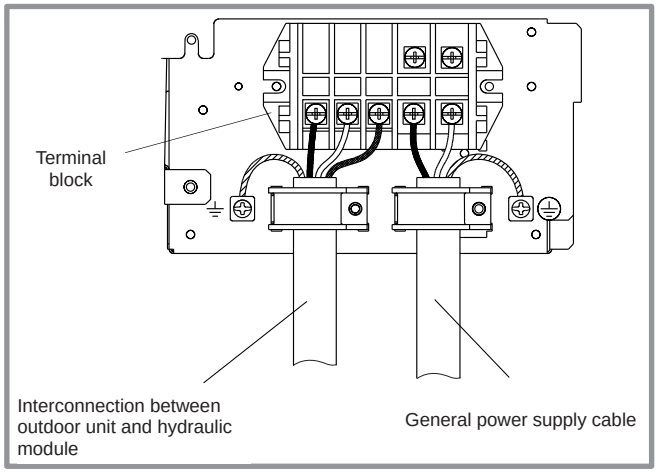



figure 38 - Access to the terminal block of the outdoor unit

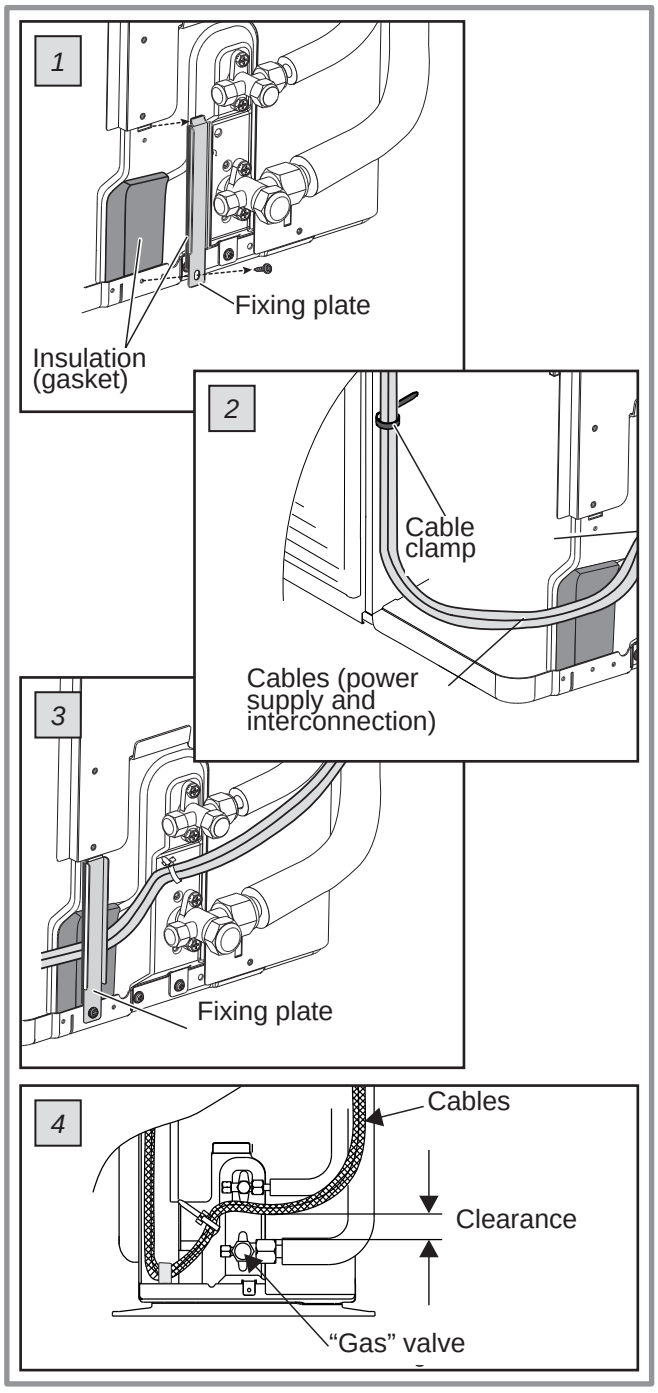



figure 39 - Finalising of the connection of the outdoor unit

### 2.15.5 Electrical connections on outdoor unit side (single phase model)

Access to the connector terminals

- Remove the front panel.
- Remove the cover (figure 37).
- Make the connections according to the diagram (figure 38).
- Use the cable clamps to avoid any accidental disconnection of the conductive wires.
- Use the attachment plate to hold the cables against the insulating plate. (item **1** to **3** figure 39). **Attach the cables so that they are not in contact with the pipes and the valves** (item **4**).

### 2.15.6 Electrical connections on outdoor unit side (three phase model)

Access to the connector terminals

- Remove the front panel. Remove the screws and the cover of the front panel.
- Make the connections according to the diagram (figure 41).

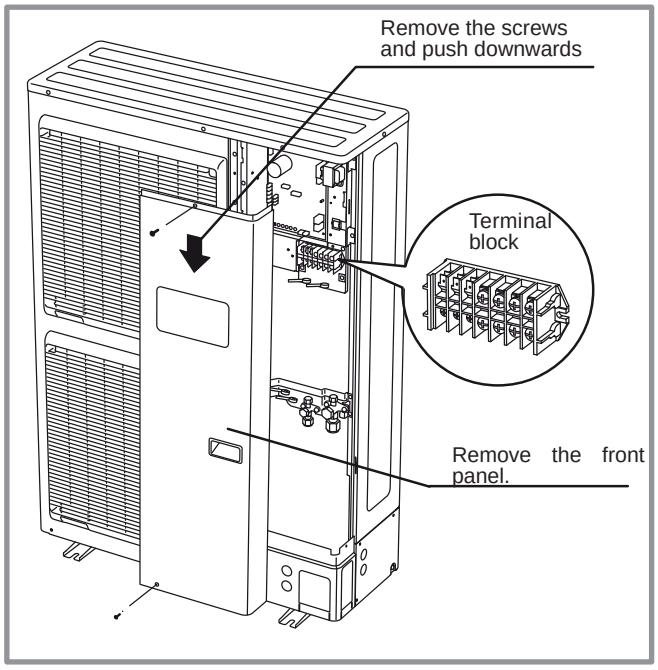



*figure 40 - Access to the terminal block of the outdoor unit*

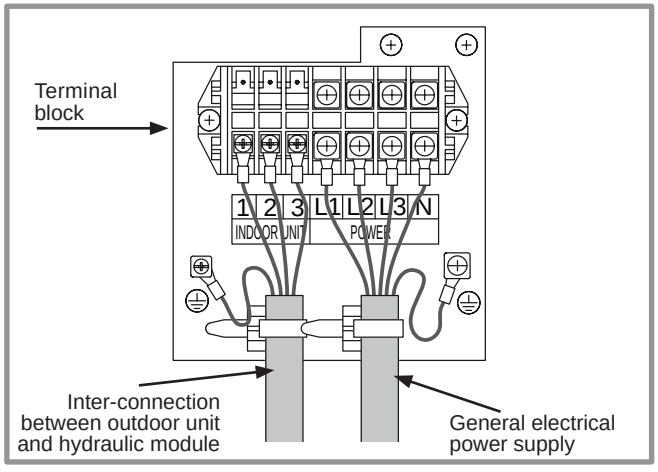



*figure 41 - Access to the terminal block of the outdoor unit*

- Use the cable clamps to avoid any accidental disconnection of the conductive wires.
- Obstruct the space at the cable inlet in the outdoor unit with the insulating plate.

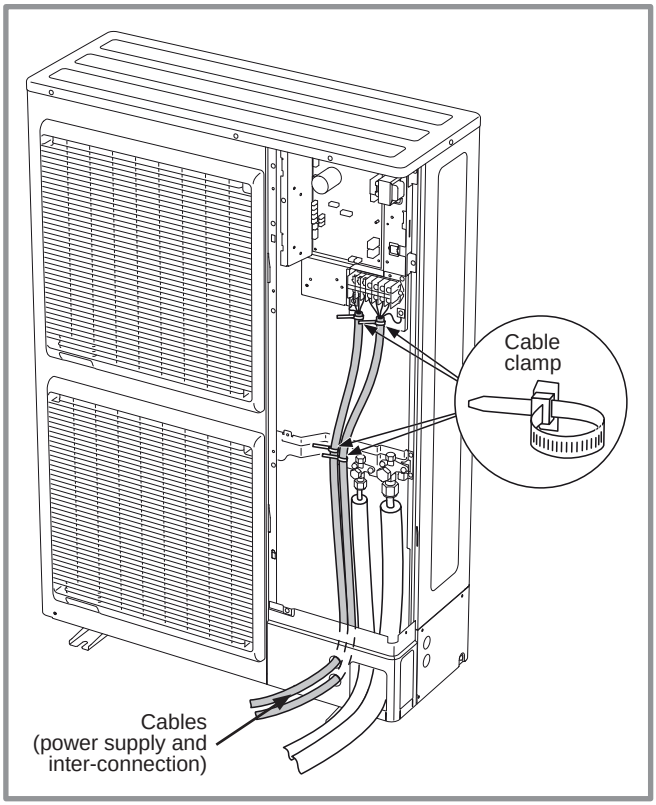



*figure 42 - Finalising of the connection of the outdoor unit*

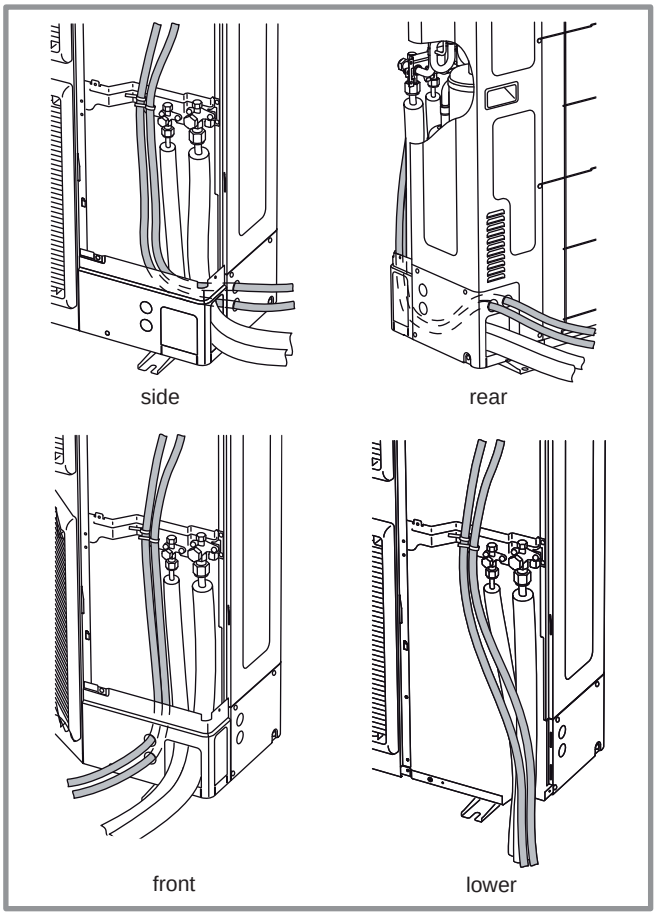



*figure 43 - Ducts for the cables and refrigerating connections of the outdoor unit*

### 2.15.7 Electrical connections on the hydraulic module side

Access to the connector terminals

- Remove the front panel.
- Open the electrical cabinet.
- Make the connections according to the diagram (figure 45 and figure 47).

Do not fit the sensor wires and the power supply wires in parallel in order to avoid interferences due to the voltage surges in the power supply.

Ensure that all of the electrical cables are housed in the spaces provided.

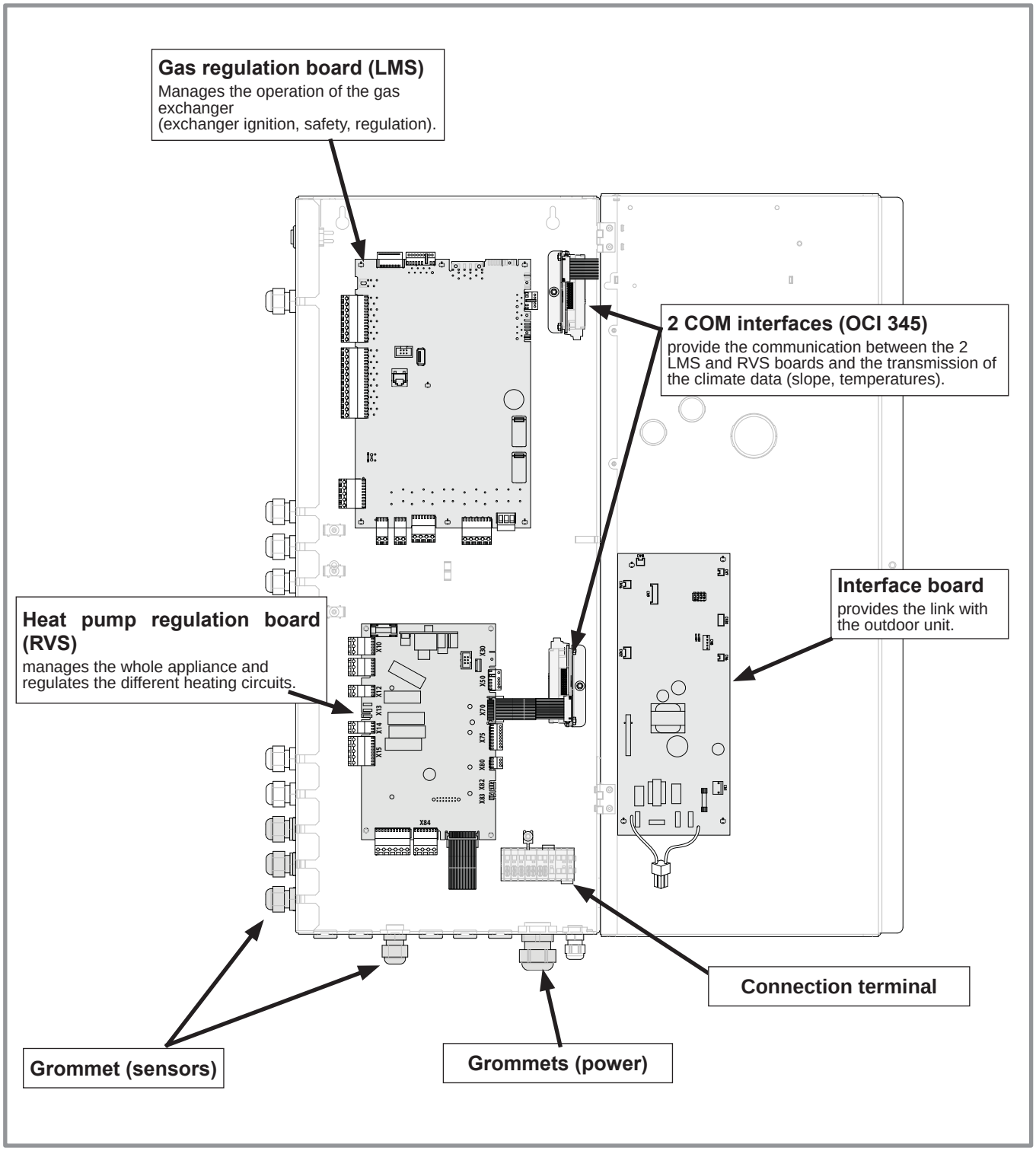

Gas regulation board (LMS)
Manages the operation of the gas exchanger
(exchanger ignition, safety, regulation).
2 COM interfaces (OCI 345)
provide the communication between the 2 LMS and RVS boards and the transmission of the climate data (slope, temperatures).
Interface board
provides the link with the outdoor unit.
Heat pump regulation board (RVS)
manages the whole appliance and regulates the different heating circuits.
Connection terminal
Grommet (sensors)
Grommets (power)

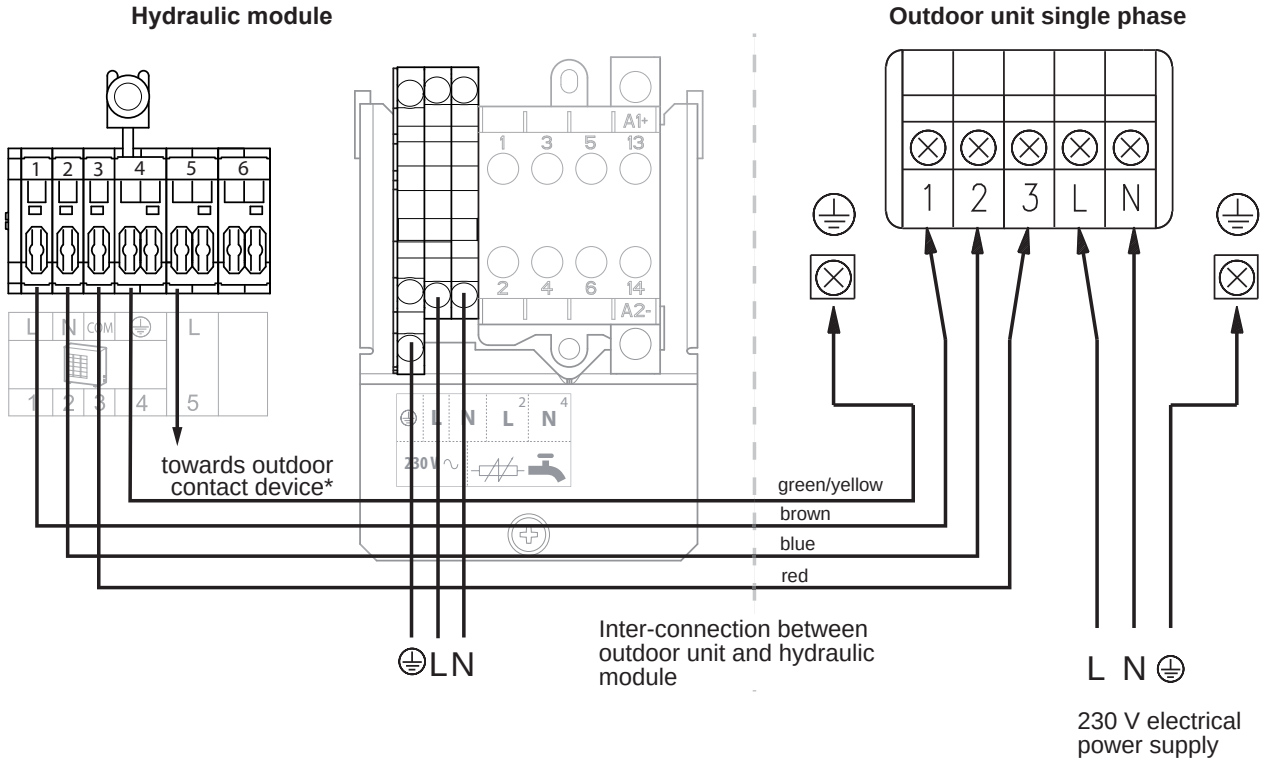
*figure 44 - Description of the hydraulic module's electrical cabinet*

**• Inter-connection between the outdoor unit and the hydraulic module:**

Respect the correspondence between the terminal blocks references of the hydraulic module and those of the outdoor unit when connecting the inter-connection cables.

An incorrect connection can cause the destruction of one of the units.

☞ **Single phase model**




☞ **Three phase model**

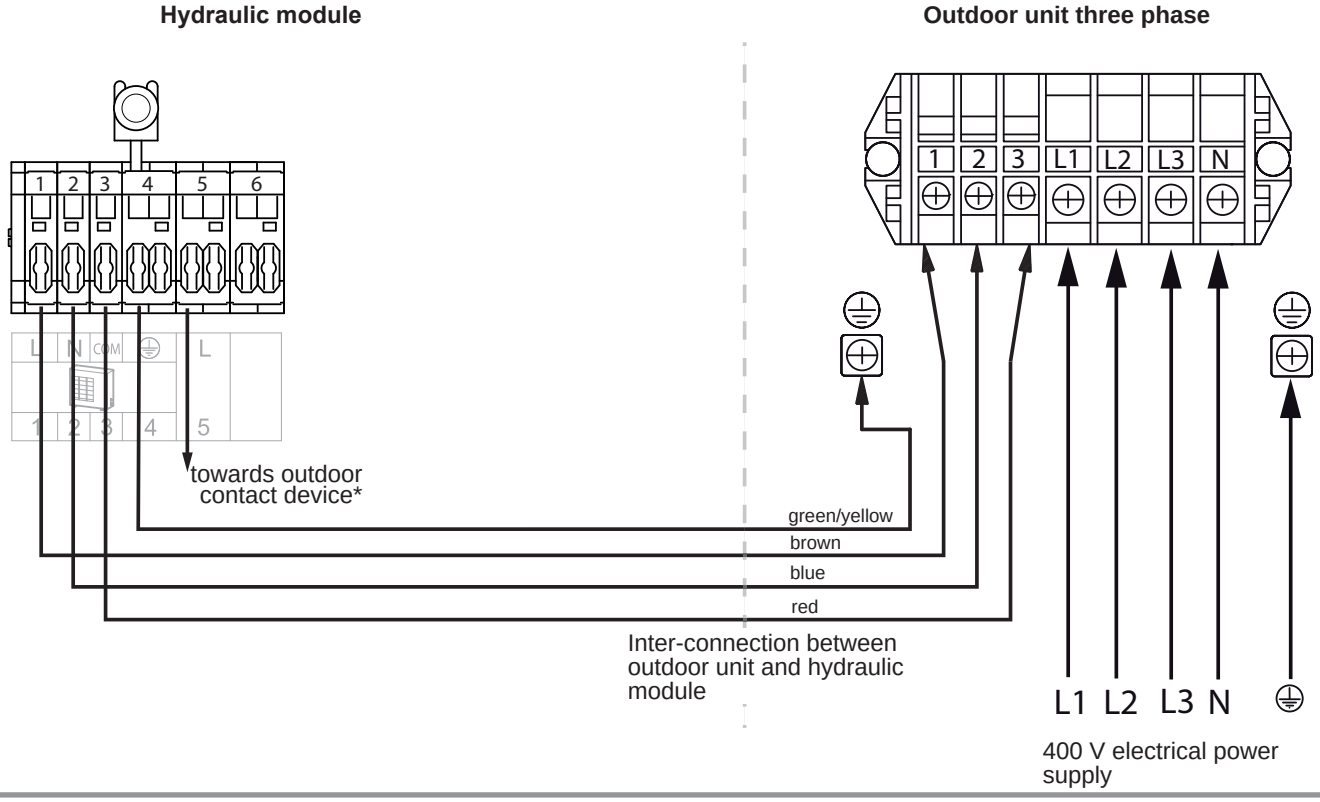



*figure 45 - Connection to the terminal blocks and power relay*

**• Second heating circuit**

- Refer to the instructions supplied with the 2 circuit hydraulic kit.

**• Load shedding or EJP (Delete peak rate day)**

The purpose of load shedding is to reduce the electrical consumption when it is too high compared to the contract with the energy supplier.

- Connect the load shedder to input EX1, the heat pump will be shut down if there is any overconsumption in the housing. The gas generator will provide the heating and domestic hot water production.

• 230 V on input EX1 = load shedding in progress (basic setting / possible modification line 5981, Configuration menu) (see function line 2920).

**• Faults outside the heat pump**

All information devices (thermostat, pressure switch, etc.) may indicate an external problem and stop the heat pump.

- Connect the external device to input EX3.

• 230 V on input EX3 = heat pump shutdown (the system displays error 369).

## 2.16 Outdoor sensor

The Outdoor sensor is required for the correct operation of the heat pump.

Consult the assembly instructions on the packaging of the sensor.

Place the sensor on the front panel that is the worst exposed, in general the North or North west front panel.

Under no circumstances must it be exposed to the sun in the morning.

It is to be installed so that it is easily accessible but at least 2.5 m from the ground.

Avoid sources of heat such as chimneys, the tops of doors or windows, nearby extraction ducts, underneath balconies and porches, that would insulate the sensor from the variations in the temperature of the air outdoors.

- Connect the external sensor to the **LMS board's X5b remote** connector.

## 2.17 Ambient sensor and/or central ambient unit

The ambient sensor (the central ambient unit) is optional.

Consult the assembly instructions on the packaging of the sensor.

The sensor must be installed in the living area, on an open wall. It is to be installed so that it is easily accessible.

Avoid sources of direct heat (chimney, television, cooker, sunlight) and areas exposed to draughts (ventilation, doors).

Draughts due to the building usually cause cold air to enter via the electrical ducts. Seal the electrical ducts if there is a cold draught at the back of the ambient sensor.

### 2.17.1 Installing an ambient sensor

• Ambient sensor T37 :

- Connect the sensor to the **X86** connector of the RVS regulation board using the connector provided (terminals **B2**, **M** and **B1**).

☞ **In the case of 2 heating circuits,** the sensor is connected to the board that corresponds to the regulated heating circuit.

• Ambient sensor T55:

- Connect the sensor to the **X86** connector of the RVS regulation board using the connector provided (terminals **1, 2**).

### 2.17.2 Installing a central ambient unit

• Central ambient unit T75:

- Connect the sensor to the **X86** connector of the RVS regulation board using the connector provided (terminals **1, 2** and **3**).

• Central ambient unit T78:

- The radio central ambient unit antenna may be installed on the wall or the rear cladding.
- Connect the radio central ambient unit to the **X60** connector.

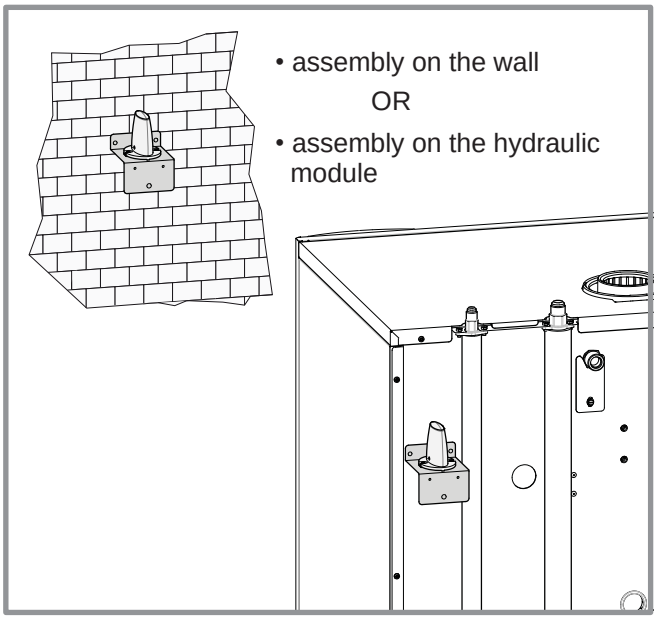



*figure 46 - Mounting the radio antenna (T78)*

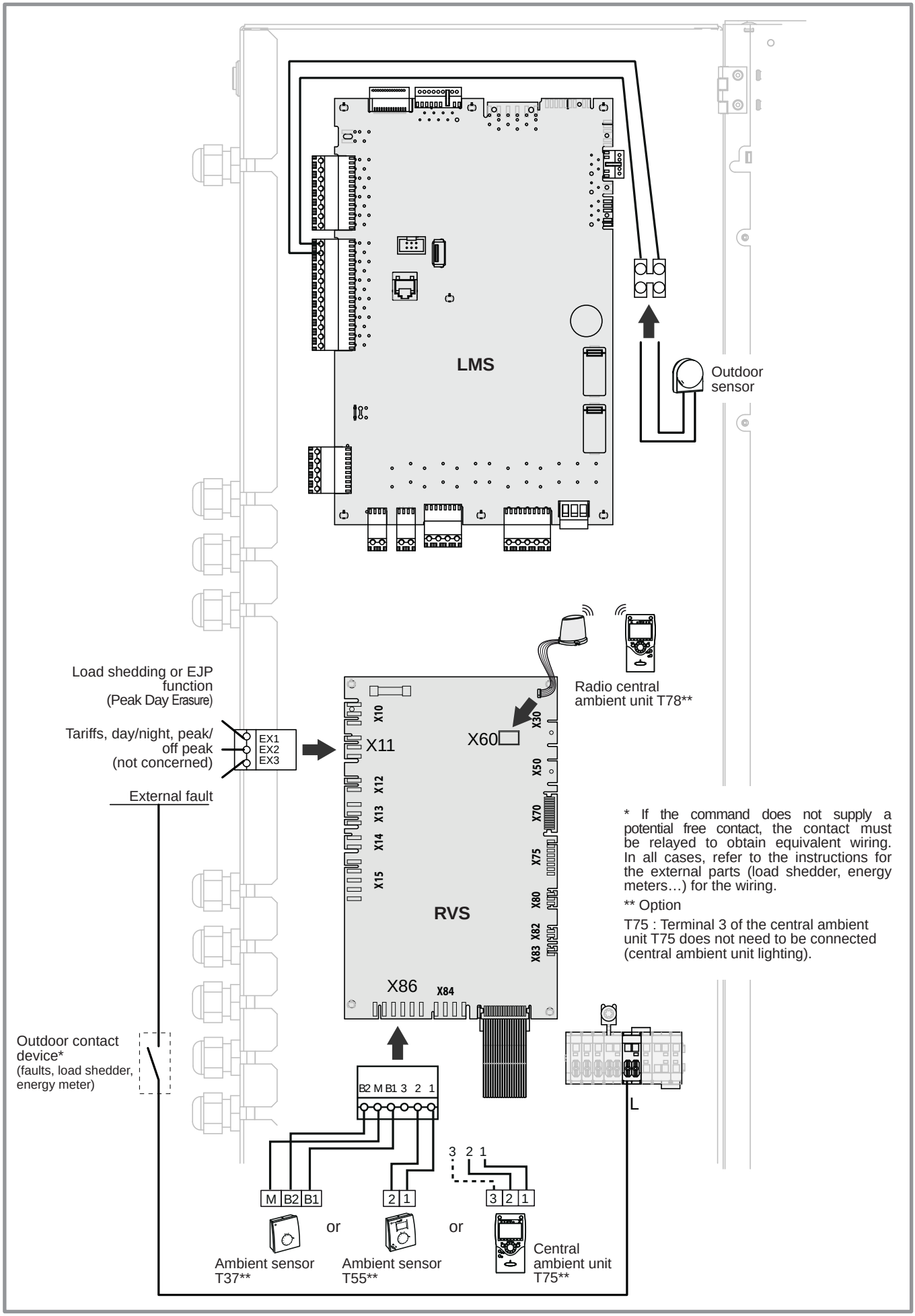



*figure 47 - Connections on the heat pump regulator (accessories and options)*

# 3 Commissioning

## 3.1 Checks before commissioning

### 3.1.1 Hydraulic circuit:

- Make sure that the installation has been rinsed.
- Check the circulator speed (figure 48).
- On commissioning, we recommend that you check that the circulators are running freely.

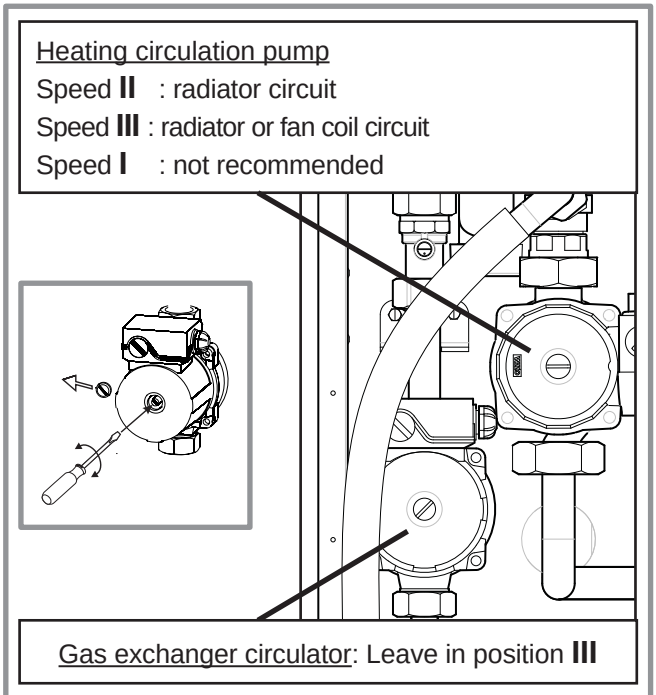

Heating circulation pump
Speed II : radiator circuit
Speed III : radiator or fan coil circuit
Speed I : not recommended
Gas exchanger circulator: Leave in position III

*figure 48 - Recommended circulator speed*

### 3.1.2 Gas circuit:

- Check that the connectors are correctly tightened.
- Open the gas valve, drain the pipes and check the seal upstream of the gas unit.
- Check the network gas pressure:

| Type of gas | Supply pressure |
|---|---|
| G 20 (Lacq gas) | 20 mbar |
| G 25 (Groninguen gas) | 25 mbar |
| G 31 (Propane gas) | 37 mbar |

☞ **Warning**

**The boilers are preset in the factory to G31 propane gas, domestic supply pressure: 37 mbar (Lacq gas)**

☞ **Check that the boiler has been correctly set for the type of gas distributed.**

Refer to the Gas change section (page 33).

### 3.1.3 Electric circuit:

- Check that the phase-neutral polarity of the electrical power supply is respected.
- Check that all the equipment is connected to the relevant connection terminals.

## 3.2 Commissioning the heat pump

- Engage the main isolator switch of the installation.

  When first put into service (or in winter), to preheat the compressor, engage the main isolator switch of the installation (outdoor unit power supply) for several hours before the tests.

- Switch on the Start/Stop button of the heat pump.

  To guarantee the correct operation of inputs EX1, EX2, EX3 : Check that the phase-neutral polarity of the electrical power supply is respected.

When put into service and every time that the Start/Stop switch is switched off and then back on, the outdoor unit requires approximately 4 min. to start up even if the regulation has demanded heating.

The display may show error 370 when starting. Do not worry, the communication will be reestablished between the outdoor unit and the hydraulic module after a few minutes.

During the initialisation phase of the regulator, all of the symbols are displayed, then the "Data, update", then"Heat pump status" is displayed.

- Make all of the specific settings for the regulation (configuration of the installation in particular):

- Press OK.

- Hold the i button for 3s and select the access level "Putting into service" using the knob.

- Confirm with the OK button
- Set the heat pump regulation parameters (consult the list of settings). § 4.4.3, page 50).

When putting into service (or in the case of an error 10) the burner may start even if the instantaneous outdoor temperature is higher than the top-up trigger temperature.

The regulation uses one mean initial outdoor temperature of 0°C and needs time to update this temperature.

To counter this situation, with the outdoor sensor correctly connected, reset the parameter 8703 (commissioning level, consumer diagnosis menu).

## 3.3 Starting the gas generator to check the combustion

To carry out the combustion checks (during a gas change or during maintenance), the gas generator can be started independently of the heat pump (figure 50).

☞ **During each intervention on the electrical cabinet, make sure that the electricity supply is disconnected.**

- Open all the heating circuit valves.

☞ **With underfloor heating circuit and 1-2 circuit kit with valve: Close the mixer valve by hand.**

### 3.3.1 Heating installation with radiators

• 1a - If the directional valve handle is in low position (DHW position) (figure 49):

- 1b - Deactivate the DHW function,
- Wait a few moments for the handle to return to high position.

• 2 - The directional valve handle is in high position (heating position):

• 3 - In the electrical cabinet, disconnect the RVS user interface layer (connector X50).

• 4 - Connect the user interface layer to the LMS (X50).

- Initialising the interface takes a few minutes.
- Set the following parameters (Specialist level: **Maintenance/special operation**):

**7143** = On

**7145** = Enter the value required
**100%** : operation at max
**0%** : operation at min

☞ **When the checks are complete:**
Set the parameter in the initial configuration:

**7143** = Off

• 5 - Reconnect the user interface layer to the RVS (X50). Initialising the interface takes a few minutes.

• 6 - Reactivate the DHW function if necessary.

### 3.3.2 Heating installation with 1 underfloor heating circuit.

☞ **Close the underfloor heating circuit mixer valve manually.**

The energy created during this setting period must be dissipated over the domestic circuit: draw off some domestic hot water to lower the tank temperature enough (< 35 °C).

• 1a - The directional valve handle must be in low position (DHW position) (figure 49): Follow the procedure in § 3.3.1 from N° 3.

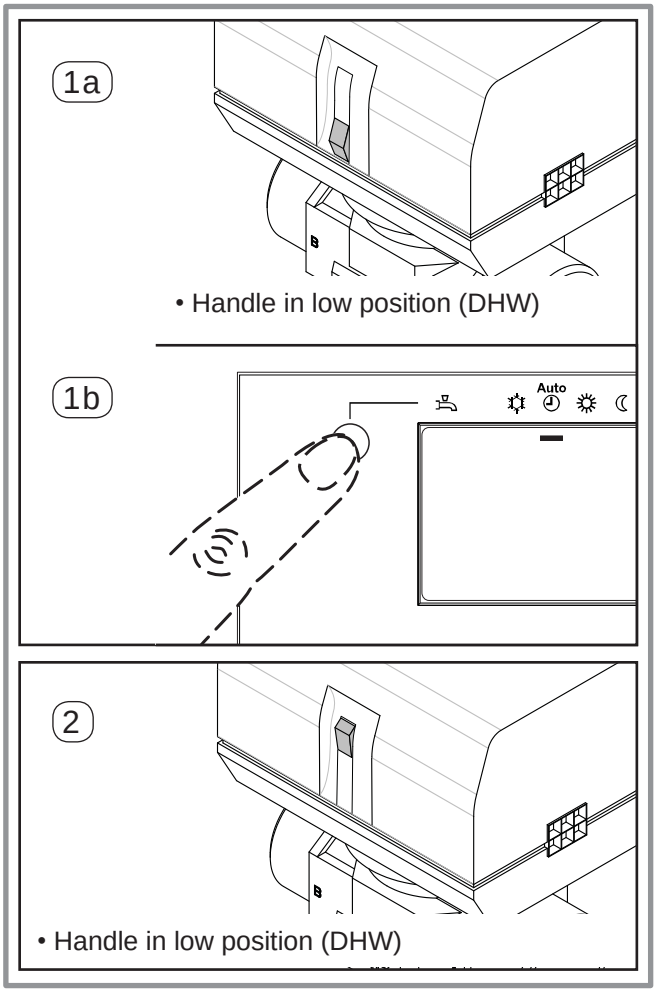



*figure 49 - Directional valve in heating position*

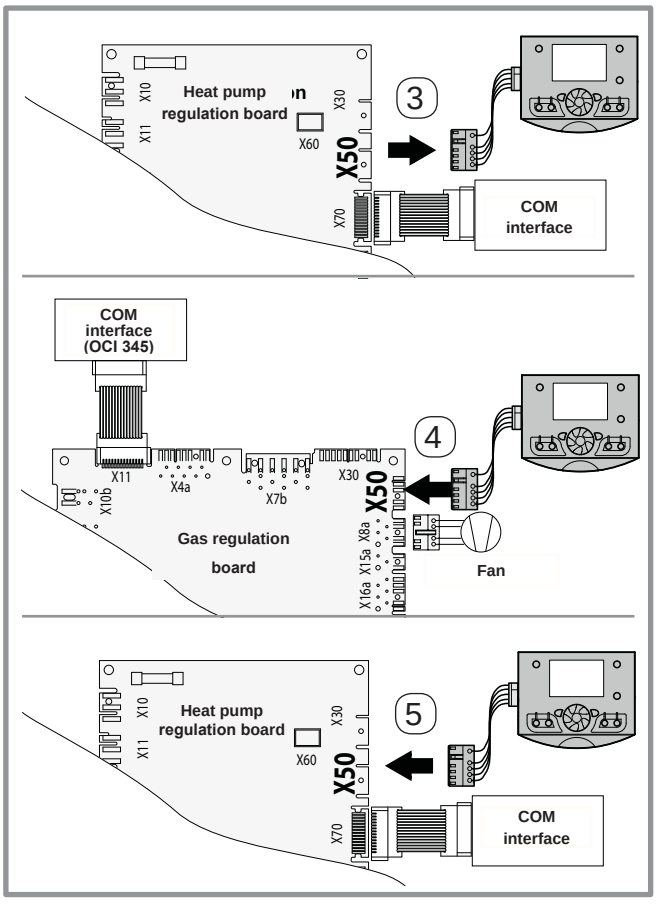



*figure 50 - Temporary connection of the user interface to the gas regulation board (LMS)*

## 3.4 Setting the combustion parameters during a gas check

To carry out the combustion checks (during a gas change or during maintenance), the gas generator can be started independently of the heat pump (figure 50).

☞ **During each intervention on the electrical cabinet, make sure that the electricity supply is disconnected.**

- Open all the heating circuit valves.

☞ **With underfloor heating circuit and 1-2 circuit kit with valve: Close the mixer valve by hand.**

### 3.4.1 Heating installation with radiators

• 1 - If the directional valve handle is in low position (DHW position) (figure 49):

- Deactivate the DHW function,
- Wait a few moments for the handle to return to high position.

• 2 - The directional valve handle is in high position (heating position):

• 3 - Disconnect the RVS user interface layer (connector X50) (figure 50).

• 4 - Connect the user interface layer to the LMS (X50).

- Initialising the interface takes a few minutes.
- Set the following parameters (Specialist level: **Maintenance/special operation**):

**7143** = On

**7145** = Enter the value required
**100%** : operation at max

The burner runs at MAX rate.

- Let the boiler temperature reach 60°C.
- Carry out a combustion check.
- Check the $CO_2$ rate (see table below).
- If necessary, adjust the $CO_2$ rate by setting the gas rate on the burner (screw item R1, figure 51).
- Adjust the parameter

**7145** = Enter the value required
**0%** : operation at min

The burner runs at MIN rate.

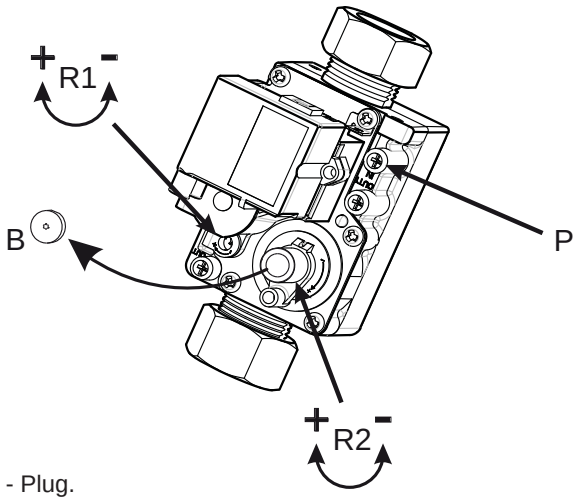
- Check the $CO_2$ rate (see table opposite).
- If necessary, adjust the pressure regulator setpoint gently (screw item R2, figure 51).
- Check the settings at MAX rate. Modify if necessary.

☞ **When the settings are complete:**
Set the parameter in the initial configuration:

**7143** = Off

• 5 - Reconnect the user interface layer to the RVS (X50). Initialising the interface takes a few minutes.

• 6 - Reactivate the DHW function if necessary.




**B** - Plug.
**R1** - Gas flow rate setting on the burner.
**R2** - Pressure regulator value setting.
**P** - Gas inlet pressure (network).

*figure 51 - Gas valve VGU86 S*

| Gas | Diaphragm marker | 0% | 100% |
|---|---|---|---|
| | | $CO_2$ min | $CO_2$ max |
| **G 20** | 20 | 8 to 9 % | 8.5 to 9.5 % |
| **G 25** | no diaphragm | 8 to 9 % | 8.5 to 9.5 % |
| **G 31** | conical | 9.5 to 10.5 % | 10 to 11 % |

*figure 52 - Rate of $CO_2$*

### 3.4.2 Heating installation with 1 underfloor heating circuit.

☞ **Close the underfloor heating circuit mixer valve manually.**

The energy created during this setting period must be dissipated over the domestic circuit: draw off some domestic hot water to lower the tank temperature enough (< 35 °C).

• 1a - The directional valve handle must be in low position (DHW position) (figure 49). Follow the procedure in § 3.4.1 from N° 3.

## 3.5 Configuration of the ambient sensor T55

To configure the ambient sensor and associate it to the adequate heating zone:

- Hold down the presence button for over 3s. The ambient sensor displays RU and a figure flashes.
- Turn the knob to select the zone (1 or 2):

☞ **If the installation has a single circuit, zone 2 is active (CC2).**

☞ **If the installation has 2 ambient sensors, Connect a sensor to X86 (RVS) first and configure it in zone 2. Then connect the other sensor which is configured by default in zone 1.**

- Press the presence button, the ambient sensor displays P1 and a figure flashes. 1: Automatic storing; a correction of the value with the knob is adopted without any specific validation (timeout) or by pressing the operation button.

2: Save with confirmation; a correction of the value with the knob is only adopted after pressing the operation button.

- Press the presence button again, the ambient sensor displays P2 and a figure flashes.

0 : OFF; all of the operating elements are available.

1 : ON; the following operating elements are locked:

- Switching the operation mode of the heating circuit.
- Adjusting the comfort value.
- Changing the operating level.

The ambient sensor displays OFF for 3s when a locked button is pressed.

## 3.6 Configuration of the central ambient unit (T75 or T78)

When putting into service, after a reset of around 3 minutes, the user language needs to be set:

- Press OK.
- Select the "user Interface" menu.
- Select the language.

Select the language (English, Deutsch, Français, Italiano, Nederlands, Español, Português, Dansk).

☞ **If the installation has a single circuit, zone 2 is active (CC2).**

☞ **In the case of 2 heating circuits:**

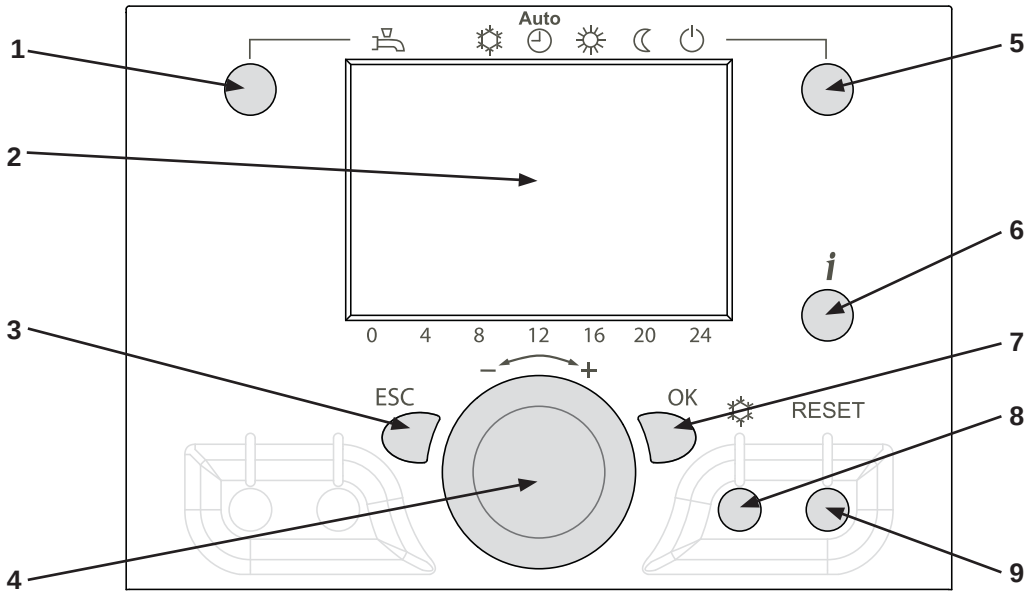
- Choose the central ambient unit's assignment (ambience appliance 1 or 2, etc.) line **40*** (see page 50).
- Depending on the assignment selected, check and modify if necessary the settings of lines **42***, **44***, **48*** (see page 50).

| *Line* | | *Function* | *Setting range or display* | *Setting increment* | *Basic setting* |
|---|---|---|---|---|---|
| 40 | I | Use as... | Ambience appliance 1, 2, P,<br>User interface 1, 2, P,<br>Service appliance | | **Ambience appliance 1** |
| | | This line is used to set the use of the central ambient unit. Depending on use, other settings are necessary (lines 42, 44, 48) | | | |
| 42 | I | Assignment appliance 1 | Heating circuit 1,<br>Heating circuits 1 & 2,<br>Heating circuits 1 & P,<br>All heating circuits | | **Heating circuit 1** |
| 44 | I | Operation heating circuit 1 (heating circuit 2 command) | Common with heating circuit 1,<br>Independent | | **Common with heating circuit 1** |
| | | This function permits the choice to be made if the ambient sensor (in option) has an action on the two zones or on a single zone. | | | |
| 48 | I | Presence button action | None,<br>Heating circuit 1,<br>Heating circuit 2,<br>Common | | |

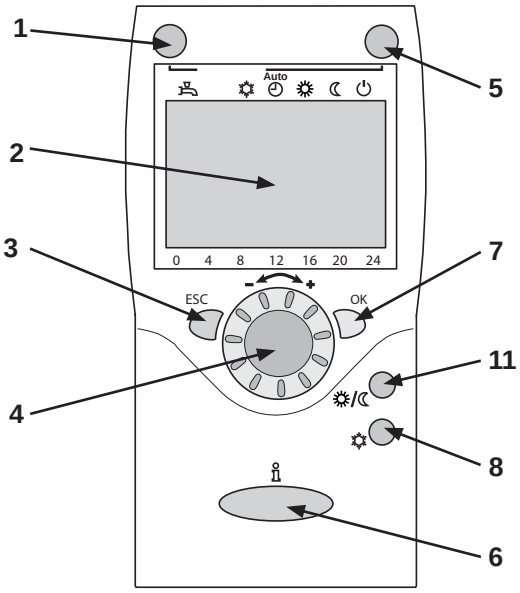
**** These parameter lines are only accessible from the central ambient unit.***

# 4 Regulation

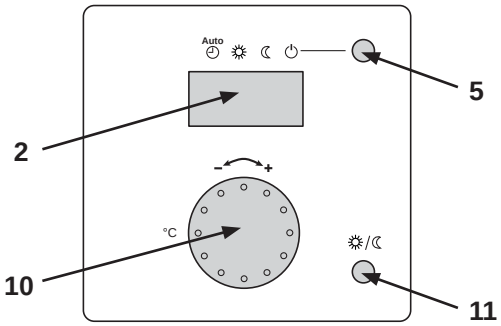
## 4.1 The user interface, the central ambient unit (option) and the ambient sensor (option)




User interface




Central ambient unit T75/T78




Ambient sensor T55

*figure 53 -*

| *Item* | *Functions* | *- Definitions of the functions* |
|---|---|---|
| 1 | Selecting the DHW operation<br> Marche<br> Arrêt | - **Start**: Production of DHW in function of the timer programme.<br>- **Stop**: Production of the DHW stopped with antifreeze function of the domestic water active.<br>- **Manual start button**: Press the DHW button for 3 s (switches from "reduced" to "comfort" until the DHW timer programme is switched again). |
| 2 | Digital display | - Check the operation, read the current temperature of the heating operation, or a possible fault.<br>- View the settings. |
| 3 | "ESC" output | - Exit the menu. |
| 4 | Navigation and setting | - Setting the comfort temperature value.<br>- Menu selection<br>- Setting the parameters. |
| 5 | Selecting the heating operation | - Auto Service heating according to the heating programme (automatic summer/winter switching).<br>- Permanent comfort temperature.<br>- Permanent reduced temperature.<br>- "Standby" operation with antifreeze protection (provided that the electrical power supply of the heat pump is not interrupted). |
| 6 | Display information | - Miscellaneous information (see page 72).<br>- Reading the error codes (see page 67).<br>- Information on maintenance, special operation. |
| 7 | Validation "OK" | - Enter the selected menu.<br>- Validate the parameter settings.<br>- Validate the comfort temperature value setting. |
| 8 | Selection of the refresh mode | - Not available |
| 9 | Reset (press for 3 seconds) | - Reset the parameters and cancel the error messages.<br>**Do not use during normal operation.** |
| 10 | Setting button | - Setting the comfort temperature value. |
| 11 | Presence button | - Comfort / reduced switching. |

## 4.2 Description of the display

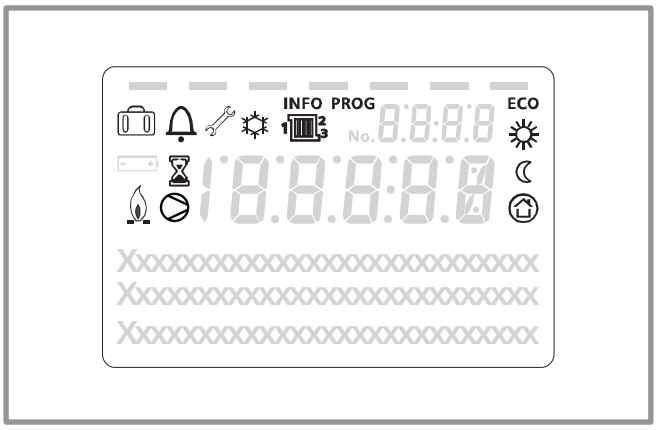
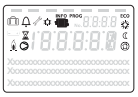



*figure 54 - User interface display*

| Symbols | Definitions |
|---|---|
| | - Heating mode active with reference to the heating circuit. |
| | - Heating in comfort mode. |
| | - Heating in reduced mode. |
| | - Heating in "standby" mode (antifreeze). |
| | - Refresh mode active. |
| | - Holiday function activated. |
| | - Process in progress. |
| | - Compressor operation. |
| | - Burner operation authorisation. |
| | - Fault message (lists page 67, page 68). |
| | - Maintenance, special operation |
| INFO | - Information level activated (list page 72). |
| PROG | - Programming activated. |
| ECO | - ECO function activated (Heating stopped temporarily) |
| | - Time / Parameter number / Setpoint value. |
| | - Ambient temperature / Setpoint value. |
| | - Setpoint information / Parameter information. |
|  | - Status message (list page 72). |

## 4.3 Water logic

The operation of the heat pump is controlled by the water logic.

The reference temperature of the heating circuit water is adjusted in function of the outdoor temperature.

☞ **The water logic is set manually by the installer (Parameters 720 and 721).**

If there are thermostatic valves fitted to the installation, they must be opened fully or set higher than the normal value of the ambient temperature.

### 4.3.1 Setting

During the installation, the water logic must be set in function of the heating transmitters and the insulation of the building.

The water logic curves (figure 55) refer to an ambient setpoint of 20 °C.

The water logic slope (parameter 720) determines the impact of variations in outdoor temperature on the variations in heating start temperature.

The higher the slope the less the reduction in outdoor temperature will create a significant increase in the heating circuit water start temperature.

The shift in water logic (parameter 721) modifies the start temperature of all the curves, without modifying the slope (figure 56) .

The corrective actions if discomfort is experienced are listed in the table (figure 57).

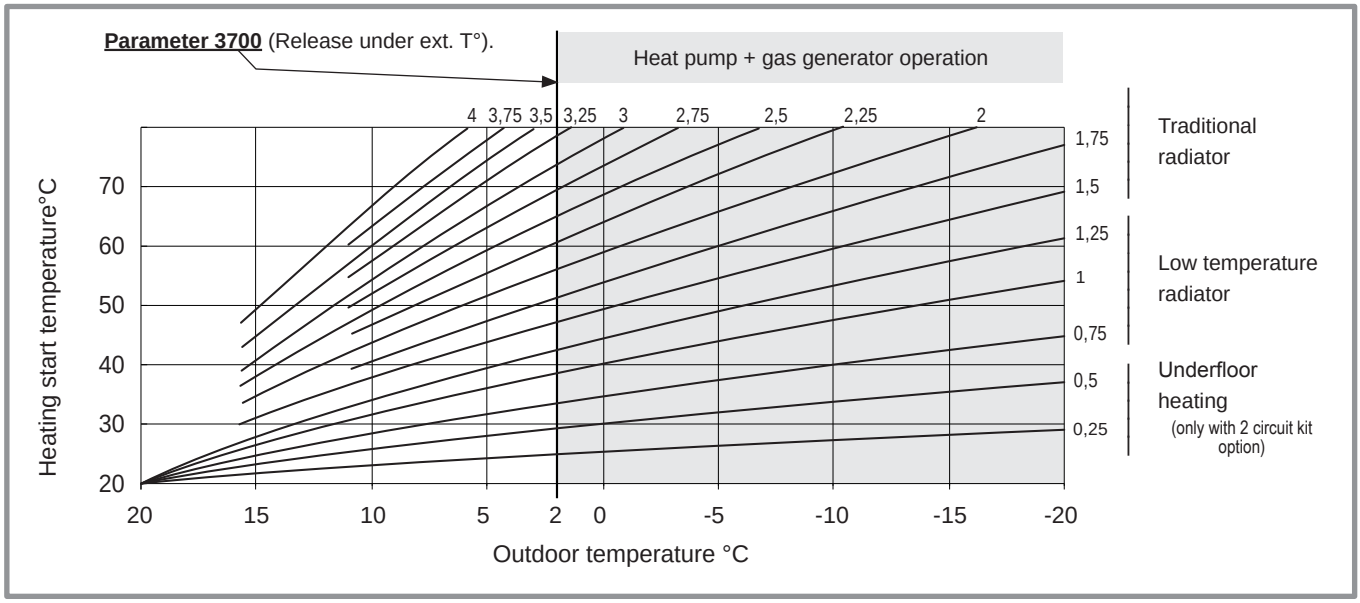

Parameter 3700 (Release under ext. T°).
Heat pump + gas generator operation
4 3,75 3,5 3,25 3 2,75 2,5 2,25 2
1,75 1,5 1,25 1 0,75 0,5 0,25
Traditional radiator
Low temperature radiator
Underfloor heating
(only with 2 circuit kit option)
Heating start temperature°C
70 60 50 40 30 20
20 15 10 5 2 0 -5 -10 -15 -20
Outdoor temperature °C

*figure 55 - Slope of the heating curve (line 720)*

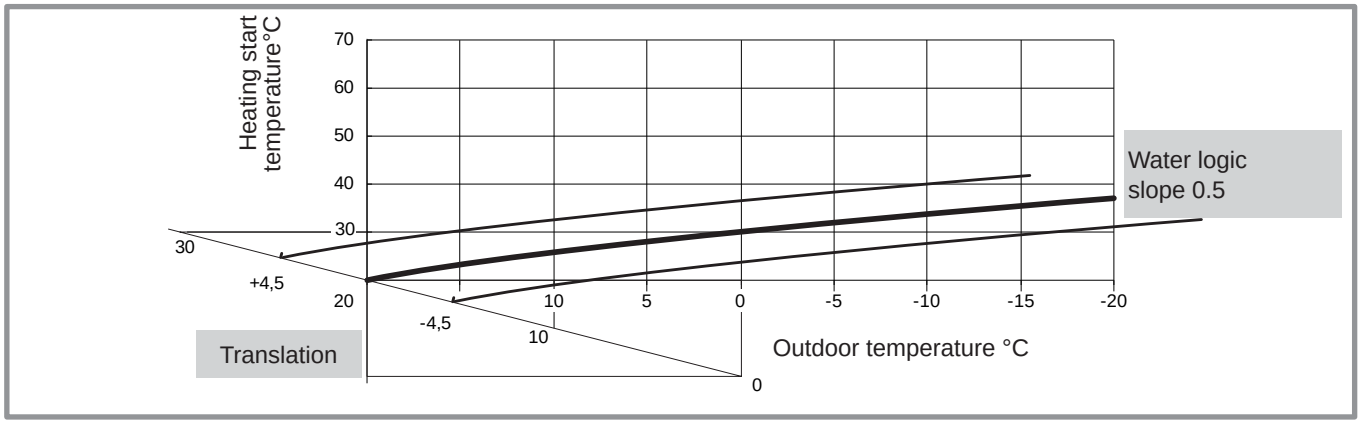



*figure 56 - Slope of the heating curve (line 721)*

| Feelings... | | | | Corrective actions on the water logic: | |
|---|---|---|---|---|---|
| ... in mild weather | | ... in cold weather | | Slope (line **720**) | Shift (line **721**) |
| Good | & | Good | → | No correction | No correction |
| Cold | & | Hot | → | − | + |
| Cold | & | Good | → | − | + |
| Cold | & | Cold | → | No correction | + |
| Good | & | Hot | → | − | No correction |
| Good | & | Cold | → | + | No correction |
| Hot | & | Hot | → | No correction | − |
| Hot | & | Good | → | + | − |
| Hot | & | Cold | → | + | − |

*figure 57 - Corrective actions in case of discomfort*

## 4.4 Regulation parameters

### 4.4.1 General

Only the parameters accessible at the levels:

**U** - end user.

**I** - Commissioning

**S** - Specialist.

are described in this document.

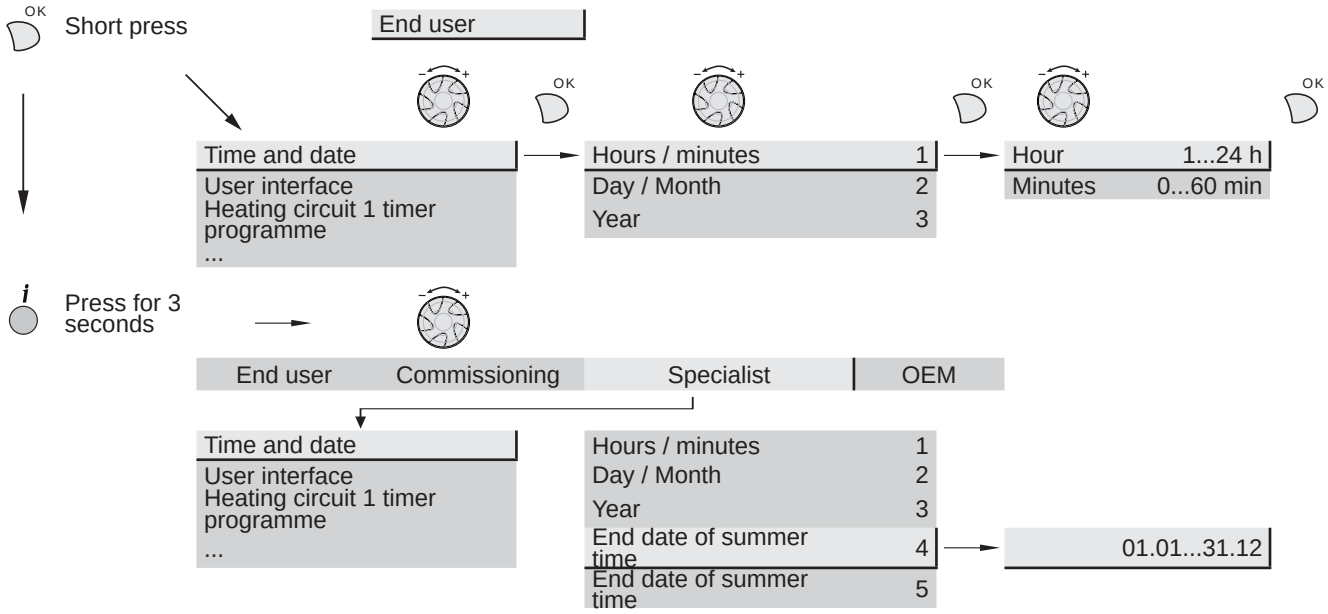
The access levels are defined in the 2nd column of the table by the letters **U**, **I** and **S**.

The OEM parameters are not described and require a manufacturer access code.

### 4.4.2 Setting the parameters

- Selecting the desired level.
- Scroll the list of menus.
- Selecting the desired menu.
- Scroll the function lines.
- Selecting the desired line.
- Adjusting the parameter.
- Validate the setting by pressing **OK**.
- To return to the menu, press **ESC**.

If no settings have been made for 8 minutes, the screen automatically returns to the basic display.




### 4.4.3 List of the function lines (settings, diagnosis, state)

☞ **For a simple installation (1 radiator circuit), only the "circuit 2" menus are accessible.**

☞ **For a 2 circuit or 1 circuit underfloor heating (with 2 circuit kit), the "circuit 1" menus will be accessible after parameter 5710 is programmed.**

| *Line* | | *Function* | *Setting range or display* | *Setting increment* | *Basic setting* |
|---|---|---|---|---|---|
| **Time and date** | | | | | |
| 1 | **U** | Hours / minutes | 00:00... 23:59 | 1 | **--:--** |
| 2 | **U** | Day / Month | 01:01... 31.12 | 1 | **--.--** |
| 3 | **U** | Year | 1900 2099 | 1 | **----** |
| 5 | **S** | Start summer time (Day / Month) | 01:01... 31.12 | 1 | **25.03** |
| 6 | **S** | End summer time (Day / Month) | 01:01... 31.12 | 1 | **25.10** |
| | | The time change appears at 03h00 on the first Sunday after the date set. | | | |
| **User interface** | | | | | |
| 20 | **U** | Language | English, Français, Italiano, Nederlands... | | **French** |
| 22 | **S** | Info | Temporary, Permanent | | **Temporary** |
| 26 | **S** | Operation locking | Stop, Start | | **Stop** |
| 27 | **S** | Programming locking | Stop, Start | | **Stop** |
| 28 | **I** | Direct setting Saving... | ...automatic<br>...with confirmation | | **with confirmation** |

| *Line* | | *Function* | *Setting range or display* | *Setting increment* | *Basic setting* |
|---|---|---|---|---|---|
| 29 | **I** | Temperature unit<br>Pressure unit | °C, °F<br>bar, psi | | **°C**<br>**bar** |
| 70 | **S** | Version of display unit software | | | |
| *** Timer programme for heating, circuit 1** | | | | | |
| | | Only appears with the 2 circuit kit option (if the installation has 2 heating circuits or 1 underfloor heating circuit). | | | |
| 500 | **U** | Preselection (day / week) | Mon-Sun, Mon-Fri, Sat-Sun,<br>Monday, ... , Saturday, Sunday | | **Mon-Sun** |
| 501 | **U** | 1st In service phase (start) | 00:00... --:-- | 10 min | **06:00** |
| 502 | **U** | 1st Out of service phase (end) | 00:00... --:-- | 10 min | **22:00** |
| 503 | **U** | 2nd In service phase (start) | 00:00... --:-- | 10 min | **--:--** |
| 504 | **U** | 2nd Out of service phase (end) | 00:00... --:-- | 10 min | **--:--** |
| 505 | **U** | 3rd In service phase (start) | 00:00... --:-- | 10 min | **--:--** |
| 506 | **U** | 3rd Out of service phase (end) | 00:00... --:-- | 10 min | **--:--** |
| 516 | **U** | Standard values | No, Yes | | **No** |
| | | Yes + OK: The standard values, saved in the regulator, replace and cancel the personalised heating programmes. Your personal settings are therefore lost. | | | |
| **Timer programme for heating, circuit 2** | | | | | |
| | | Basic programme for a simple, 1 radiator circuit installation | | | |
| 520 | **U** | Preselection (day / week) | Mon-Sun, Mon-Fri, Sat-Sun,<br>Monday, ... , Saturday, Sunday | | **Mon-Sun** |
| 521 | **U** | 1st In service phase (start) | 00:00... --:-- | 10 min | **06:00** |
| 522 | **U** | 1st Out of service phase (end) | 00:00... --:-- | 10 min | **22:00** |
| 523 | **U** | 2nd In service phase (start) | 00:00... --:-- | 10 min | **--:--** |
| 524 | **U** | 2nd Out of service phase (end) | 00:00... --:-- | 10 min | **--:--** |
| 525 | **U** | 3rd In service phase (start) | 00:00... --:-- | 10 min | **--:--** |
| 526 | **U** | 3rd Out of service phase (end) | 00:00... --:-- | 10 min | **--:--** |
| 536 | **U** | Standard values | No, Yes | | **No** |
| | | Yes + OK: The standard values, saved in the regulator, replace and cancel the personalised heating programmes. Your personal settings are therefore lost. | | | |
| **Timer programme 4/DHW** | | | | | |
| | | The DHW timer programme follows the heating timer programme, one hour ahead. To programme the DHW separately, you must first change parameter 1620 to "Timer programme 4/DHW". | | | |
| 560 | **U** | Preselection (day / week) | Mon-Sun, Mon-Fri, Sat-Sun,<br>Monday, ... , Saturday, Sunday | | **Mon-Sun** |
| 561 | **U** | 1st In service phase (start) | 00:00... --:-- | 10 min | **00:00** |
| 562 | **U** | 1st Out of service phase (end) | 00:00... --:-- | 10 min | **05:00** |
| 563 | **U** | 2nd In service phase (start) | 00:00... --:-- | 10 min | **--:--** |
| 564 | **U** | 2nd Out of service phase (end) | 00:00... --:-- | 10 min | **--:--** |
| 565 | **U** | 3rd In service phase (start) | 00:00... --:-- | 10 min | **--:--** |
| 566 | **U** | 3rd Out of service phase (end) | 00:00... --:-- | 10 min | **--:--** |
| 576 | **U** | Standard values | No, Yes | | **No** |
| | | Yes + OK: The standard values, saved in the regulator, replace and cancel the personalised heating programmes. Your personal settings are therefore lost. | | | |
| *** Timer programme 5/Refresh** | | | | | |
| | | (Not available) | | | |

***** *These menus may not appear. They depend on the appliance's configuration.*

| Line | | Function | Setting range or display | Setting increment | Basic setting |
|---|---|---|---|---|---|
| * **Holidays, Circuit 1** (for the holidays programme to be active the heating mode must be set to AUTO) | | | | | |
| | | Only appears with the 2 circuit kit option (if the installation has 2 heating circuits or 1 underfloor heating circuit). | | | |
| 641 | **U** | Preselection | Period 1 to 8 | | **Period 1** |
| 642 | **U** | Date of start of holidays (Day/month) | 01:01... 31.12 | 1 | **--.--** |
| 643 | **U** | Date of end of holidays (Day/Month) | 01:01... 31.12 | 1 | **--.--** |
| 648 | **U** | Heating rate during the holidays | Antifreeze protection, Reduced | | **Antifreeze protection** |
| **Holidays, Circuit 2** (for the holidays programme to be active the heating mode must be set to AUTO) | | | | | |
| | | Basic programme for a simple, 1 radiator circuit installation | | | |
| 651 | **U** | Preselection | Period 1 to 8 | | **Period 1** |
| 652 | **U** | Date of start of holidays (day/month) | 01:01... 31.12 | 1 | **--.--** |
| 653 | **U** | Date of end of holidays (Day/Month) | 01:01... 31.12 | 1 | **--.--** |
| 658 | **U** | Heating rate during the holidays | Antifreeze protection, Reduced | | **Antifreeze protection** |
| * **Setting the heating, circuit 1** | | | | | |
| | | Only appears with the 2 circuit kit option (if the installation has 2 heating circuits or 1 underfloor heating circuit). | | | |
| 710 | **U** | Ambient comfort temperature value | Reduced temperature… Comfort value | 0.5 °C | **20 °C** |
| 712 | **U** | Reduced ambient temperature value | Antifreeze temperature... Comfort temperature | 0.5 °C | **19 °C** |
| 714 | **U** | Ambient "antifreeze" temperature value | 4 °C… Reduced temperature | 0.5 °C | **8 °C** |
| 716 | **S** | Maximum comfort value | Comfort temperature... 35 °C | 1 °C | **28 °C** |
| 720 | **I** | Heating curve slope (figure 55, page 49) | 0.1 4 | 0.02 | **0.5** |
| 721 | **I** | Translation of the heating curve (figure 56, page 49) | -4.5 °C... 4.5 °C | 0.5 °C | **0** |
| 730 | **I** | Summer/winter heating limit | 8 °C... 30 °C | 0.5 °C | **18 °C** |
| | | When the mean of the external temperatures over the last 24 hours reaches 18°C the regulator stops the heating (economy).<br>In summer operation, the display shows "Eco". This function is only active in automatic operation. | | | |
| 740 | **S** | Min. start value (for fan coil unit) | 8 °C... Max. start value | 1 °C | **8 °C** |
| 741 | **S** | Max. start value | Min. start value 80 °C | 1 °C | **55 °C** |
| | | Underfloor heating (compulsory with 2 circuit kit) = 50 °C / Radiators = 65 °C.<br>**Important note:** The maximum limit is not a safety function as that required for under-floor heating. | | | |
| 750 | **S** | Influence of the ambient temperature | 1%... 100% | 1% | **50%** |
| | | If the installation is equipped with an ambient sensor:<br>This function allows the influence of the ambient temperature on the regulation to be chosen.<br>If no value is entered, the regulation is via the water logic.<br>If the parameter is set to 100%, the regulation is only made using the ambient temperature. | | | |
| 760 | **S** | Room temperature limitation | 0,5... 4 °C | 0.5 °C | **0.5 °C** |
| | | As soon as the room temperature = [Setpoint line **710** (ex. 20°C) + Room temperature limitation setpoint line **760** (ex. 0,5 °C)] > 20,5 °C => The heat pump is stopped.<br>It restarts when the room temperature falls below the setpoint (in the example, Room temperature < 20,0 °C). | | | |
| 780 | **S** | Accelerated lowering | Stop, To reduced value, To antifreeze | | **Stop** |
| 790 | **S** | Maximum optimisation on trigger (Anticipated start to reach the comfort value) | 0 ... 360 min | 10 min | **180 min** |
| 791 | **S** | Maximum optimisation on disconnection (Anticipated stop to switch from the comfort value to the reduced value) | 0...360 min | 10 min | **30 min** |

***** *These menus may not appear. They depend on the appliance's configuration.*

| Line | | Function | Setting range or display | Setting increment | Basic setting |
|---|---|---|---|---|---|
| 800 | **S** | Start increasing the reduced operation | -30... 10 °C | 1 °C | **--** |
| 801 | **S** | End of increase in reduced operation | -30... 10 °C | 1 °C | **-5 °C** |
| 830 | **S** | Raising of mixing valve | 0... 50 °C | 1 °C | **0 °C** |
| 834 | **S** | Servomotor travel time | 30... 873 s | 1 s | **240 s** |
| 850 | **I** | Controlled drying (floor) (figure 58) | | | **Stop** |
| | | - Stop: Advanced stoppage of the programme running, programme not active<br>- Heating functional.<br>- Heating ready for occupation.<br>- Functional heating + heating ready.<br>- Heating ready + functional heating.<br>- Manual: The manual mode allows the drying of the floor to be programmed. The function ends automatically after 25 days. | | | |
| 851 | **I** | Manual floor drying value (if line 850 = manual) | 0... 95 °C | 1 °C | **25 °C** |
| | | This function allows the customised floor drying temperature to be set. This temperature remains fixed. The floor drying programme stops automatically after 25 days of operation. | | | |
| 856 | **I** | Current drying day | 0... 32 | | **0** |
| 857 | **I** | Drying days completed | 0... 32 | | **0** |
| 900 | **S** | Switching of operation | None, Protection mode, Reduced, Comfort, Automatic | 1 | **Protection mode** |
| | | Operating mode at the end of floor drying. | | | |

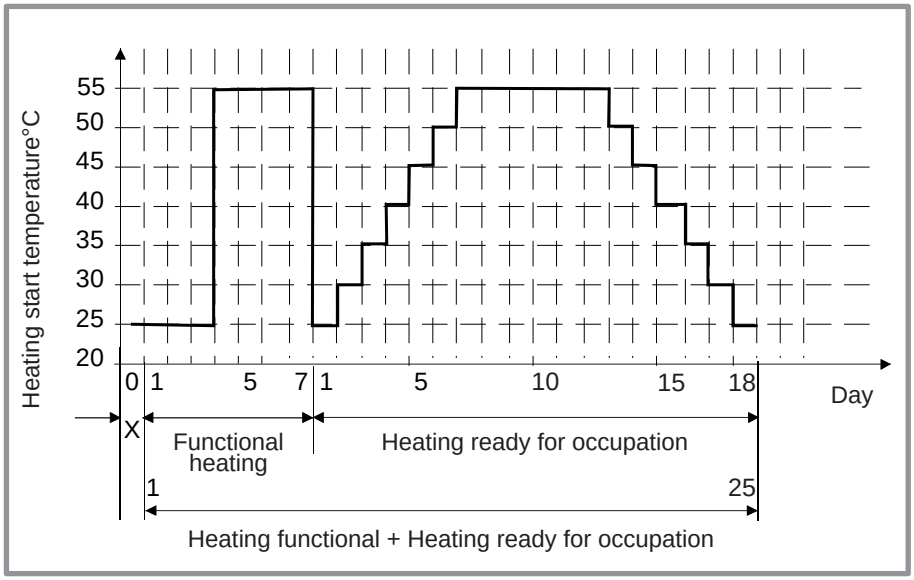



*figure 58 - Diagram of the floor drying programmes*

☞ **Respect the standards and values of the building constructor! Correct operation of this function is only possible with a correct installation (hydraulic, electricity and settings)! The function may be interrupted earlier by setting to "Stop".**

| Line | | Function | Setting range or display | Setting increment | Basic setting |
|---|---|---|---|---|---|
| **Setting the heating, circuit 2** | | | | | |
| | | Basic programme for a simple, 1 radiator circuit installation | | | |
| 1010 | **U** | Ambient comfort temperature value | Reduced temperature…<br>Comfort value | 0.5 °C | **20 °C** |
| 1012 | **U** | Reduced ambient temperature value | Antifreeze temperature...<br>Comfort temperature | 0.5 °C | **19 °C** |
| 1014 | **U** | Ambient "antifreeze" temperature value | 4 °C… Reduced temperature | 0.5 °C | **8 °C** |
| 1016 | **S** | Maximum comfort value | Comfort temperature... 35 °C | 1 °C | **28 °C** |
| 1020 | **I** | Heating curve slope (figure 55, page 49) | 0.1... 4 | 0.02 | **0.5** |
| 1021 | **I** | Translation of the heating curve (figure 56, page 49) | -4.5... 4.5 °C | 0.5 °C | **0 °C** |
| 1030 | **I** | Summer/winter heating limit | 8... 30 °C | 0.5 °C | **18 °C** |
| | | When the mean of the external temperatures over the last 24 hours reaches 18°C the regulator stops the heating (economy).<br>In summer operation, the display shows "Eco". This function is only active in automatic operation. | | | |
| 1040 | **S** | Min. start value (for fan coil) | 8 °C... 70 °C | 1 °C | **8 °C** |
| 1041 | **S** | Max. start value | 8 °C... 80 °C | 1 °C | **80 °C** |
| | | Radiator circuit only. | | | |
| 1050 | **S** | Influence of the ambient temperature | 1 %... 100 % | 1 % | **50 %** |
| | | If the installation is equipped with an ambient sensor:<br>This function allows the influence of the ambient temperature on the regulation to be chosen.<br>If no value is entered, the regulation is via the water logic.<br>If the parameter is set to 100%, the regulation is only made using the ambient temperature. | | | |
| 1060 | **S** | Room temperature limitation | 0,5... 4 °C | 0.5 °C | **0.5 °C** |
| | | As soon as the room temperature = [Setpoint line **1010** (ex. 20°C) + Room temperature limitation setpoint line **1060** (ex. 0,5 °C)] > 20,5 °C => The heat pump is stopped.<br>It restarts when the room temperature falls below the setpoint (in the example, Room temperature < 20,0 °C). | | | |
| 1080 | **S** | Accelerated lowering | Stop, To reduced value,<br>To antifreeze | | **Stop** |
| 1090 | **S** | Maximum optimisation when started | 0... 360 min | 10 min | **180 min** |
| 1091 | **S** | Maximum optimisation when stopped | 0... 360 min | 10 min | **30 min** |
| 1100 | **S** | Start increasing the reduced operation | -30... 10 °C, --°C | 1 °C | **--** |
| 1101 | **S** | End of increase in reduced operation | -30... 10 °C, --°C | 1 °C | **-5 °C** |
| 1130 | **S** | Raising of mixing valve | 0... 50 °C | 1 °C | **0 °C** |
| 1134 | **S** | Servomotor travel time | 30... 873 s | 1 s | **240 s** |
| 1150 | **I** | Controlled floor drying (figure 58, page 53) | | | **Stop** |
| | | Stop = advanced interruption to the current programme, programme inactive<br>Heating functional<br>Heating ready for occupation<br>Heating functional + heating ready<br>Heating ready for occupation + heating functional<br>Manual = he manual mode allows the drying of the floor to be programmed.<br>The function ends automatically after 25 days. | | | |
| 1151 | **I** | Manual floor drying value (if line 1150 = manual) | 0... 95 °C | 1 °C | **25 °C** |
| | | This function allows the customised floor drying temperature to be set. This temperature remains fixed.<br>The floor drying programme stops automatically after 25 days of operation. | | | |
| 1156 | **I** | Current drying day | 0... 32 | | **0** |
| 1157 | **I** | Drying days completed | 0... 32 | | **0** |
| 1200 | **S** | Switching of operation | None, Protection mode,<br>Reduced, Comfort, Automatic | | **Protection mode** |
| | | Operating mode at the end of floor drying. | | | |

| *Line* | | *Function* | *Setting range or display* | *Setting increment* | *Basic setting* |
|---|---|---|---|---|---|
| **Setting the DHW (domestic hot water)** | | | | | |
| 1610 | **U** | Comfort DHW T° value | Reduced value (line 1612)…<br>65 °C | 1 | **55 °C** |
| 1612 | **U** | Reduced DHW T° value | 8 °C...<br>Comfort value (line 1610) | 1 | **40 °C** |
| 1620 | **I** | Liberation of the DHW load | 24h/day,<br>Heat circ timer prog.<br>Timer programme 4/DHW,<br>Peak hours rate (THC),<br>Timer prog. 4/DHW and THC | | **Heating circuit timer prog.** |
| | | **24h/day**: The DHW temperature is maintained permanently at the DHW comfort value. | | | |
| | | **Heating circuit timer prog.** : The DHW production follows the timer programming of the ambient temperature (with start advanced by 1 hour). | | | |
| | | **Timer programme 4/DHW**: The DHW programme is independent from the heating circuit programme. | | | |
| | | **Off peak rates tariff (THC)**: Not concerned | | | |
| | | **Timer prog.4/DHW and THC**: Not concerned | | | |
| 1640 | **I** | Anti-legionnella function | Stop,<br>Periodic (according to the setting for line),<br>Fixed day of the week (according to the setting for line) | | **Stop** |
| 1641 | **S** | Frequency of anti-legionella cycle | 1 to 7 | 1 day | **7** |
| 1642 | **S** | Anti-legionella cycle operation day | Mon, Tues,… | | **Sunday** |
| *** Swimming pool (only displayed with the swimming pool kit option)** | | | | | |
| 2056 | **U** | Generator ref. heating value | 8... 35 °C | | **22 °C** |
| **Heat pump** | | | | | |
| 2803 | **S** | Cond. pump timed stop | 8... 240 s | 1 s | **240s** |
| 2843 | **S** | Duration of compr min. stop. | 0... 120 min | 1 °C | **8 min** |
| 2844 | **S** | Max. temp. of thermodynamic operation | 8... 100 °C | 1 °C | **65 °C** |
| 2862 | **S** | Time 2 speed blocked | 0... 40 min | 1 min | **5 min** |
| 2873 | **S** | Modulation / compressor operation time | 10... 600 s | 1 s | **240 s** |
| 2882 | **S** | Complete liberation of electrical back up | 0... 500 °Cmin | 1 °Cmin | **100 °Cmin** |
| 2884 | **S** | Electrical liberation - start below outdoor temperature | -30... 30 °C | | **2 °C** |
| 2886 | **S** | Compens. heat deficit | Stop, Start<br>Only for drying operation | | **Stop** |
| 2916 | **S** | Heat pump DHW max temperature | 8... 80 °C | | **52 °C** |
| 2920 | **S** | In the event of an EJP blocking signal (EX1) | Blocked while waiting<br>Liberated | | **Blocked while waiting** |
| | | **Liberated**:<br>Heat pump = start _ boiler = start.<br>**Blocked while waiting (Locked)**<br>Heat pump = stop _ boiler = start. | | | |

***** *These menus may not appear. They depend on the appliance's configuration.*

| Line | | Function | Setting range or display | Setting increment | Basic setting |
|---|---|---|---|---|---|
| **Additional generator (Relieve boiler)** | | | | | |
| 3692 | **S** | With DHW charging | Locked, Substitute, Complement, Instantly | | **Substitute** |
| | | **- DHW Instantly** : When DHW request, the HP and the boiler are put into operation. The HP will stop when the primary return temperature is over 55 °C.<br>**- DHW Substitute** : If the outdoor temperature is above 2 °C, the operation of the HP when DHW request last 5 minutes at least. The HP operating time can be extended depending on the outdoor temperature. The boiler will activate then. | | | |
| 3700 | **S** | Liberation below outdoor T° (outdoor temperature) (figure 55, page 49) | -50... 50 °C | 1 °C | **2 °C** |
| 3701 | **S** | Liberation above outdoor T° | -50... 50 °C | 1 °C | **--** |
| 3705 | **S** | Timer stopped | 0... 120 min | 1 min | **0** |
| 3720 | **S** | Full boiler reading switching | 0... 500 °Cmin | 1 °Cmin | **100 °Cmin** |
| 3723 | **S** | Generator blockage time | 1... 120 min | 1 min | **--** |
| **DHW tank** | | | | | |
| 5024 | **S** | Switching differential | 0... 20 °C | 1 °C | **7 °C** |
| 5030 | **S** | Limiting load duration | 10... 600 min | 10 min | **90 min** |
| 5055 | **S** | DHW tank adiabatic cooling time | 10... 95 °C | 1 °C | **65 °C** |
| 5057 | **S** | Collector DHW tank adiabatic cooling | Stop, Summer, Always | | **Summer** |
| 5061 | **S** | Electrical resistance liberation | 24h/day, DHW liberation, Timer programming 4/DHW | | **Liberation of DHW** |
| 5093 | **S** | Function not used | | | |
| **Configuration of installation** | | | | | |
| 5700 | **I** | Pre-settings | 1,2,3,... 10 | 1 | **10** |
| | | For all installation configurations, the preset is 10 | | | |
| 5710 | **S** | Heating circuit 1 | Stop, Start | | **Stop** |
| | | For a simple installation (1 radiator circuit only) = **Stop**<br>With 2 circuit kit option (2 circuits or 1 underfloor heating circuit) = **On** | | | |
| 5711 | **S** | Cooling circuit 1 | Stop, 4 tube system, 2 tube system | | **Stop** |
| 5715 | **S** | Heating circuit 2 | Stop, Start | | **Start** |
| 5731 | **S** | DHW Q3 setting device | No charge request, Charge pump, Directional valve | | **Directional valve** |
| 5806 | **I** | Start electrical resistance type | 1: 3 speeds, 2: 2 exclusive speeds, 3 : 2 backup speeds, 4 : Modulating UX | | **3: 2 backup speeds** |
| 5981 | **S** | Input action direction EX1 | Rest contact, Working contact | | **Operation contact** |
| 5983 | **S** | Input action direction EX2 | Rest contact, Working contact | | **Rest contact** |
| 5985 | **S** | Input action direction EX3 | Rest contact, Working contact | | **Operation contact** |
| 6098 | **S** | Function not used | | | |
| 6100 | **S** | Correction of outdoor temperature sensor | -3... 3 °C | 0.1 °C | **0 °C** |
| 6120 | **S** | Installation antifreeze | Start, Stop | | **Start** |
| 6205 | **S** | Reset parameters | No, Yes | | **No** |
| 6220 | **S** | Software version (RVS) | 0... 99 | | **--** |

| Line | | Function | Setting range or display | Setting increment | Basic setting |
|---|---|---|---|---|---|
| 6420 | **S** | H33 input function (=H4) | 1... 26 | | **Switching of heating circuit + DHW operation** |
| 6421 | **S** | Contact action direction H33 | Rest contact, Working contact | | **Operation contact** |
| **LPB network** | | | | | |
| 6600 | **S** | Function not used | | | **1** |
| **Error** | | | | | |
| 6711 | **U** | Heat pump reset | No, Yes | | **No** |
| 6800 | **S** | History 1 | Date, Time, Error code | | |
| 6802 | **S** | History 2 | Date, Time, Error code | | |
| 6804 | **S** | History 3 | Date, Time, Error code | | |
| 6806 | **S** | History 4 | Date, Time, Error code | | |
| 6808 | **S** | History 5 | Date, Time, Error code | | |
| 6810 | **S** | History 6 | Date, Time, Error code | | |
| 6812 | **S** | History 7 | Date, Time, Error code | | |
| 6814 | **S** | History 8 | Date, Time, Error code | | |
| 6816 | **S** | History 9 | Date, Time, Error code | | |
| 6818 | **S** | History 10 | Date, Time, Error code | | |
| **Maintenance/Special operation** | | | | | |
| 7070 | **S** | Time interval for the maintenance of the heat pump | 0... 240 | 1 month | **--** |
| 7071 | **S** | Operating time of the heat pump since last maintenance. Reset? (return to zero) No, Yes | 0... 240 | 1 month | **0** |
| 7073 | **S** | Mean number of compressor start up operations per hour of operation, over the last 6 weeks. Reset? (return to zero) No, Yes | 0... 12 | | **0** |
| 7141 | **U** | Backup operation | Stop, Start | | **Stop** |
| | | Stop: The heat pump is operating normally (with the boiler if necessary).<br>Start: The boiler is operating on its own, | | | |
| 7142 | **S** | Backup service operating type | Manual, Automatic | | **Manual** |
| | | Manual: The emergency operation is not activated when there is a fault (emergency operation = Stop).<br>Automatic: The emergency operation is activated when there is a fault (Emergency operation = Start). | | | |
| 7150 | **I** | Simulation of outdoor temperature | -50... 50 °C | 0.5 | **--** |
| **Test of inputs/outputs** | | | | | |
| 7700 | **I** | Test of relays | | | **0** |
| | | This test consists of commanding the regulator relays one by one and checking the outputs. This permits a check that the relays are operating and that the wiring is correct (for this, check that each appliance is operating on the installation).<br>(0) No test, (1) All STOP, (2) Relay output QX1 : heating circuit circulator CC2 (main régul. board), (3) Relay output QX2, (4) Relay output QX3 : Boiler RLV contact, (5) Relay output QX4 : direct valve. DHW, (6) Relay output QX5, (7) Relay output QX6 , (8) Relay output QX31 : mixer valve opening (Y1), (9) Relay output QX32 : mixer valve closure (Y2), (10) Relay output QX33 : heating circuit circulator CC1, (11) Relay output QX34, (12) Relay output QX35 : swimming pool directional valve, (13) Relay output QX21 module 1, (14) Relay output QX22 module 1, (15) Relay output QX23 module 1, (16) Relay output QX21 module 2, (17) Relay output QX22 module 2, (18) Relay output QX23 module 2, (19) not used, (20) not used, (21) not used. | | | |
| | | The display shows the "key" symbol. By pressing the Info button, "error 368" is displayed.<br>**Warning! During the test, the component tested is electrically powered.** | | | |
| 7710 | **I** | Test on output UX1 | 0... 100% | 1 | **--** |
| 7712 | **I** | Signal PWM UX1 | 0... 100% | 1 | **--** |
| 7716 | **I** | Test on output UX2 | 0... 100% | 1 | **--** |

| Line | | Function | Setting range or display | Setting increment | Basic setting |
|---|---|---|---|---|---|
| 7719 | I | Signal PWM UX | 0... 100% | 1 | **0** |
| 7722 | I | Cooling operation D2 | Stop, Start | | **Stop** |
| 7723 | I | Heat pump D3 | Stop, Start | | **Stop** |
| 7724 | I | Test on output U4 ("Inverter" command) | 0... 100 % | | **--** |
| 7725 | I | Voltage signal U4 (Ux3) | 0... 10 v | | **0** |
| 7804 | I | Sensor temperature BX1 (heat pump start T°) | -28... 350 °C | | **--** |
| 7805 | I | Sensor temperature BX2 (heat pump return T°) | -28... 350 °C | | **--** |
| 7806 | I | Sensor temperature BX3 (water T°) | -28... 350 °C | | **--** |
| 7807 | I | Sensor temperature BX4 (common start T°) | -28... 350 °C | | **--** |
| 7808 | I | Temperature sensor BX5 | -28... 350 °C | | **--** |
| 7809 | I | Temperature sensor BX6 | -28... 350 °C | | **--** |
| 7830 | I | Temperature sensor BX21 module 1 | -28... 350 °C | | **--** |
| 7832 | I | Temperature sensor BX21 module 2 | -28... 350 °C | | **--** |
| 7847 | I | Contact status H2, module 2 | Open, Closed | | **Open** |
| 7911 | I | Input EX1 (load shedding, EJP) | 0, 230 V | | **--** |
| 7912 | I | Input EX2 (peak/off peak tariffs) | 0, 230 V | | **--** |
| 7913 | I | Input EX3 (external fault) | 0, 230 V | | **--** |
| 7973 | I | Sensor temperature BX31 (mixed circuit T°) | -28... 350 °C | | **--** |
| 7974 | I | Temperature sensor BX32 | -28... 350 °C | | **--** |
| 7975 | I | Temperature sensor BX33 | -28... 350 °C | | **--** |
| 7976 | I | Sensor temperature BX34 (swimming pool exchanger circuit T°) | -28... 350 °C | | **--** |
| 7977 | I | Temperature sensor BX35 | -28... 350 °C | | **--** |
| 7978 | I | Temperature sensor BX36 | -28... 350 °C | | **--** |
| 7996 | I | Contact status H33 | Open, Closed | | **Open** |
| **State** | | | | | |
| 8000 | I | State of heating circuit 1 | | | **--** |
| 8001 | I | State of heating circuit 2 | | | |
| 8003 | I | DHW state | | | **--** |
| 8004 | I | State of cooling circuit 1 | | | |
| 8006 | I | State of heat pump | | | **--** |
| 8007 | I | Function not used | | | |
| 8010 | I | Function not used | | | |
| 8011 | I | State of swimming pool | | | |
| 8022 | I | State of additional generator | | | **--** |
| **Diagnosis of generator** | | | | | |
| 8402 | I | Electrical resistance 1 start | Stop, Start | | **No function** |
| 8403 | I | Electrical resistance 2 start | Stop, Start | | **No function** |
| 8406 | I | Condenser pump | Stop, Start | | **No function** |
| 8410 | U | Heat pump return temperature | 0... 140 °C | | **--** |
| | | Heat pump ref. value (start) | | | **--** |

| Line | | Function | Setting range or display | Setting increment | Basic setting |
|---|---|---|---|---|---|
| 8412 | **U** | Heat pump start temperature | 0... 140 °C | | **--** |
| | | Heat pump ref. value (start) | | | **--** |
| 8413 | **U** | Compressor modulation | 0... 100% | | **--** |
| 8414 | **I** | Electrical resistance modulation | 0... 100% | | **--** |
| 8425 | **S** | Condenser temperature difference | -50... 140 °C | | **--** |
| 8450 | **S** | Hours run compressor 1 | | h | **--** |
| 8454 | **S** | Heat pump locking start<br>Reset? (return to zero) No, Yes | 0... 2730 h | | **--** |
| 8455 | **S** | Heat pump counter locking<br>Reset? (return to zero) No, Yes | 0... 65535 | | **--** |
| 8456 | **S** | Hours of operation of electrical start<br>Reset? (return to zero) No, Yes | 0... 2730 h | | **--** |
| 8457 | **S** | Counter for n° of electrical starts<br>Reset? (return to zero) No, Yes | 0... 65535 | | **--** |
| 8499 | **S** | Function not used | | | |
| 8505 | **S** | Function not used | | | |
| 8510 | **S** | Function not used | | | |
| 8511 | **S** | Function not used | | | |
| 8512 | **S** | Function not used | | | |
| 8513 | **S** | Function not used | | | |
| 8515 | **S** | Function not used | | | |
| **Consumer diagnostic** | | | | | |
| 8700 | **U** | Outdoor temperature | -50... 50 °C | | **--** |
| 8701 | **U** | Minimum outdoor temperature<br>Reset? (return to zero) No, Yes | -50... 50 °C | | **--** |
| 8702 | **U** | Maximum outdoor temperature<br>Reset? (return to zero) No, Yes | -50... 50 °C | | **--** |
| 8703 | **I** | Attenuated outdoor temperature<br>Reset? (return to zero) No, Yes | -50... 50 °C | | **--** |
| | | This is the average outdoor temperature over a 24 hour period.<br>This value is used for automatic summer / winter switching (line 730). | | | |
| 8704 | **I** | Mixed outdoor temperature | -50... 50 °C | | **--** |
| | | The mixed outdoor temperature is a combination of the "current outdoor temperature" and the "mean outdoor temperature" calculated by the regulator. This value is used to calculate the start temperature. | | | |
| 8730 | **I** | Heating circuit 1 circulator | Stop, Start | | **No function** |
| 8731 | **I** | Heating circuit 1 mixing valve open | Stop, Start | | **No function** |
| 8732 | **I** | Heating circuit 1 mixing valve closed | Stop, Start | | **No function** |
| 8740 | **U** | Ambient temperature 1 | 0... 50 °C | | **--** |
| | | Ambient temperature value 1 | | | **20°C** |
| 8743 | **U** | Start temperature 1 | 0... 140 °C | | **--** |
| | | Start temperature ref. value 1 | | | **--** |
| 8756 | **U** | Cooling start temperature 1 | 0... 140 °C | | **--** |
| | | Cooling temperature value 1 | | | **--** |
| 8760 | **I** | Heating circuit 2 pump | Stop, Start | | **No function** |
| 8770 | **I** | Ambient temperature 2 | 0... 50 °C | | **--** |
| | | Ambient temperature value 2 | | | **20°C** |

| *Line* | | *Function* | *Setting range or display* | *Setting increment* | *Basic setting* |
|---|---|---|---|---|---|
| 8773 | **U** | Start temperature 2 | 0... 140 °C | | **--** |
| | | Start temperature ref. value 2 | | | **--** |
| 8820 | **I** | DHW circulator | Stop, Start | | **Stop** |
| 8821 | **I** | DHW electrical resistance | Stop, Start | | **Stop** |
| 8830 | **U** | DHW temperature | 0... 140 °C | | **--** |
| | | DHW temperature value | | | **50°C** |
| 8840 | **S** | Hours of operation of DHW pump<br>Reset? (return to zero) No, Yes | 0... 2730 h | | **--** |
| 8841 | **S** | Counter for DHW pump starts<br>Reset? (return to zero) No, Yes | 0... 199999 | | **--** |
| 8842 | **S** | Hours of electrical operation of DHW pump<br>Reset? (return to zero) No, Yes | 0... 2730 h | | **--** |
| 8843 | **S** | Counter for DHW electrical starts<br>Reset? (return to zero) No, Yes | 0... 65535 | | **--** |
| 8900 | **U** | Swimming pool temperature | 0... 140 °C | | **--** |
| | | Swimming pool value | | | **22°C** |
| 8950 | **I** | Line start temperature | 0... 140 °C | | **--** |
| | | Common start temperature value | | | **--** |
| 8957 | **I** | Line start value, refresh | 0... 140 °C | | **--** |
| 8980 | **I** | Function not used | | | |
| 8981 | **I** | Function not used | | | |
| 9031 | **I** | Relay output QX1 | Stop, Start | | **Start** |
| 9032 | **I** | Relay output QX2 | Stop, Start | | **Start** |
| 9033 | **I** | Relay output QX3 | Stop, Start | | **Stop** |
| 9034 | **I** | Relay output QX4 | Stop, Start | | **Stop** |
| 9035 | **I** | Relay output QX5 | Stop, Start | | **Stop** |
| 9050 | **I** | Relay output QX21 module 1 | Stop, Start | | **No function** |
| 9051 | **I** | Relay output QX22 module 1 | Stop, Start | | **No function** |
| 9052 | **I** | Relay output QX23 module 1 | Stop, Start | | **No function** |
| 9053 | **I** | Relay output QX21 module 2 | Stop, Start | | **No function** |
| 9054 | **I** | Relay output QX22 module 2 | Stop, Start | | **No function** |
| 9055 | **I** | Relay output QX23 module 2 | Stop, Start | | **No function** |
| 9071 | **I** | Relay output QX31 | Stop, Start | | **Stop** |
| 9072 | **I** | Relay output QX32 | Stop, Start | | **Stop** |
| 9073 | **I** | Relay output QX33 | Stop, Start | | **Stop** |
| 9074 | **I** | Relay output QX34 | Stop, Start | | **Stop** |
| 9075 | **I** | Relay output QX35 | Stop, Start | | **Stop** |

# 5 Electrical wiring diagrams

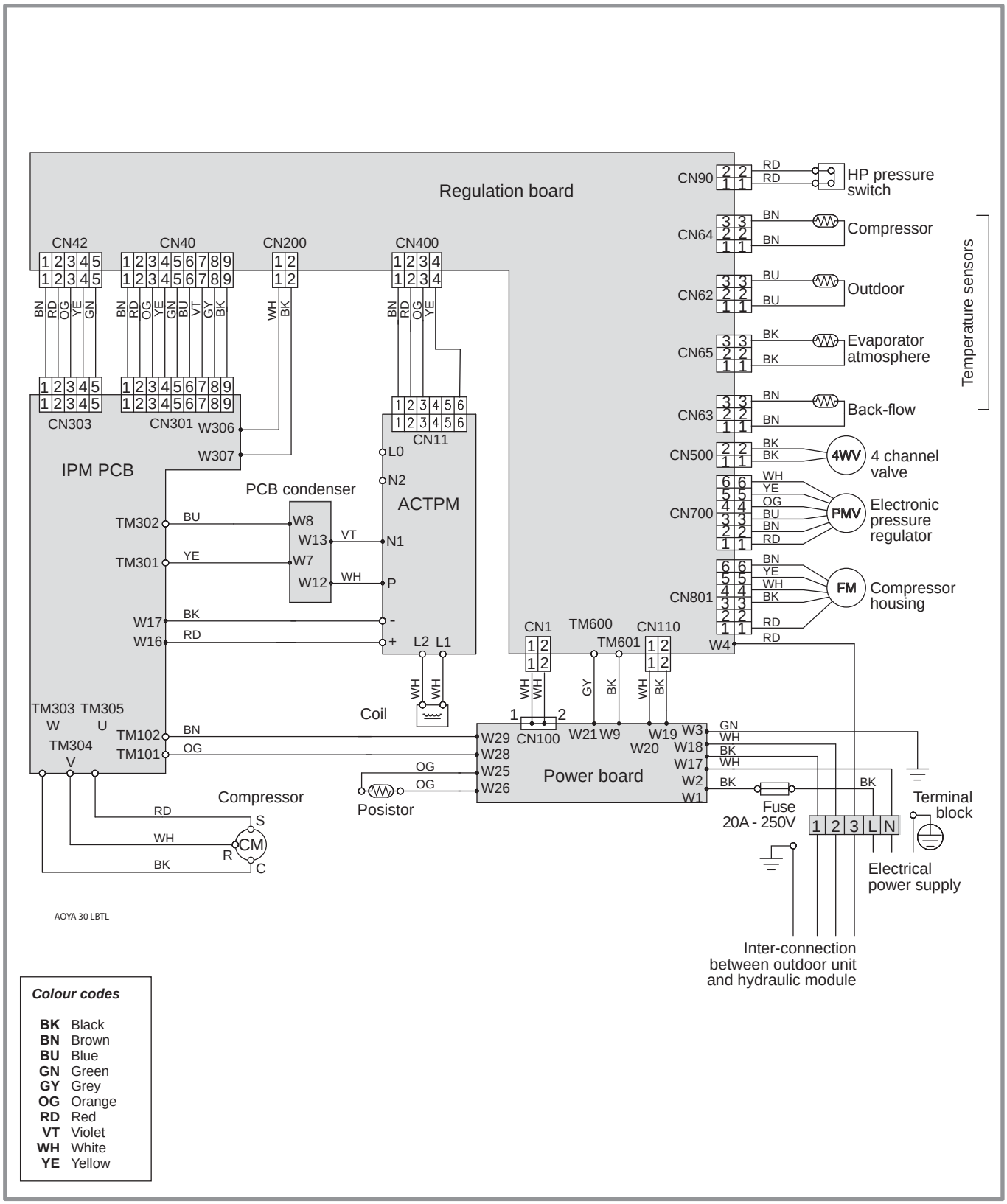



*figure 59 - Outdoor unit electrical cabling (alféa hybrid duo gas 10 single phase)*

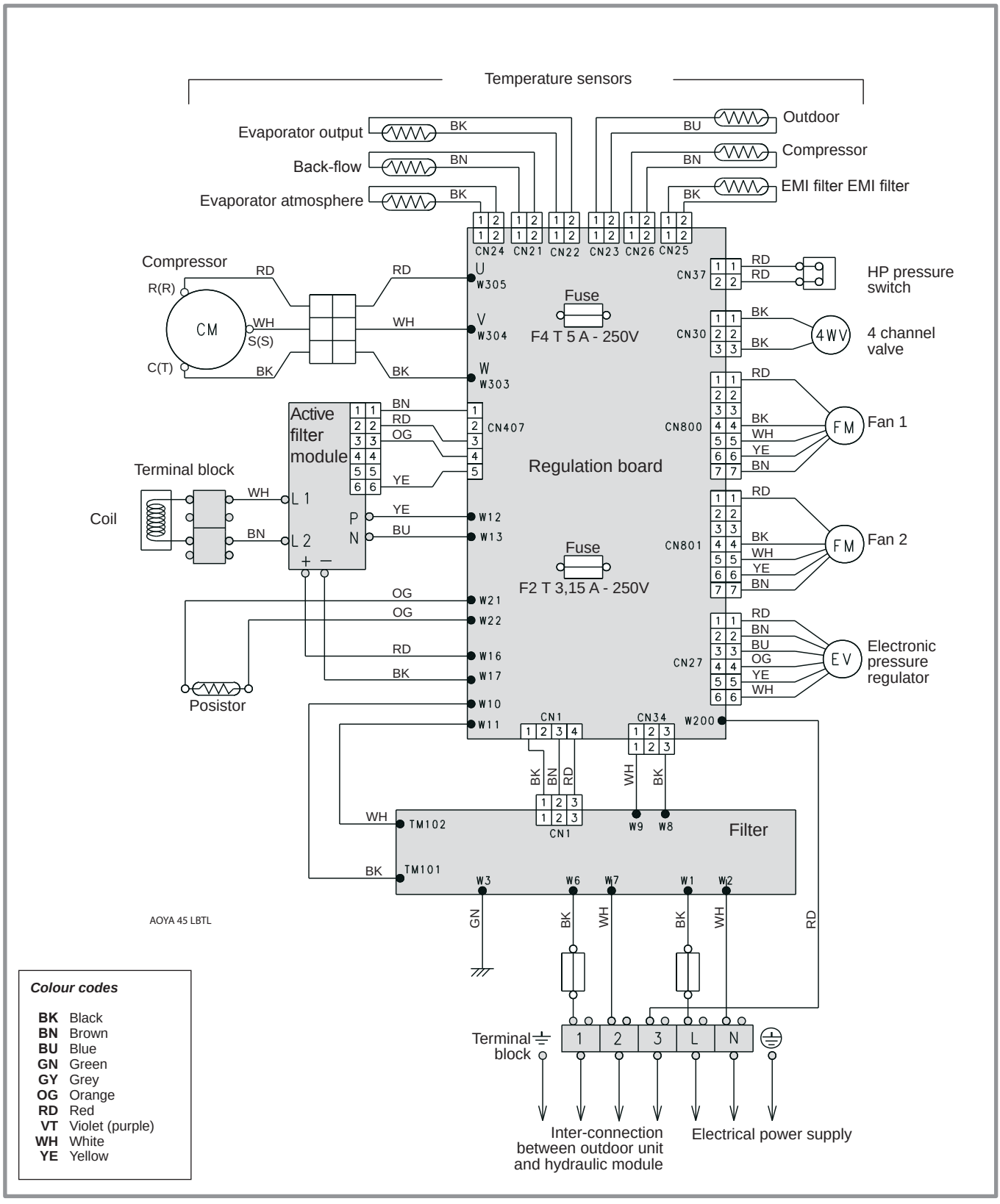



*figure 60 - Outdoor unit electrical cabling (alféa hybrid duo gas 13 single phase)*

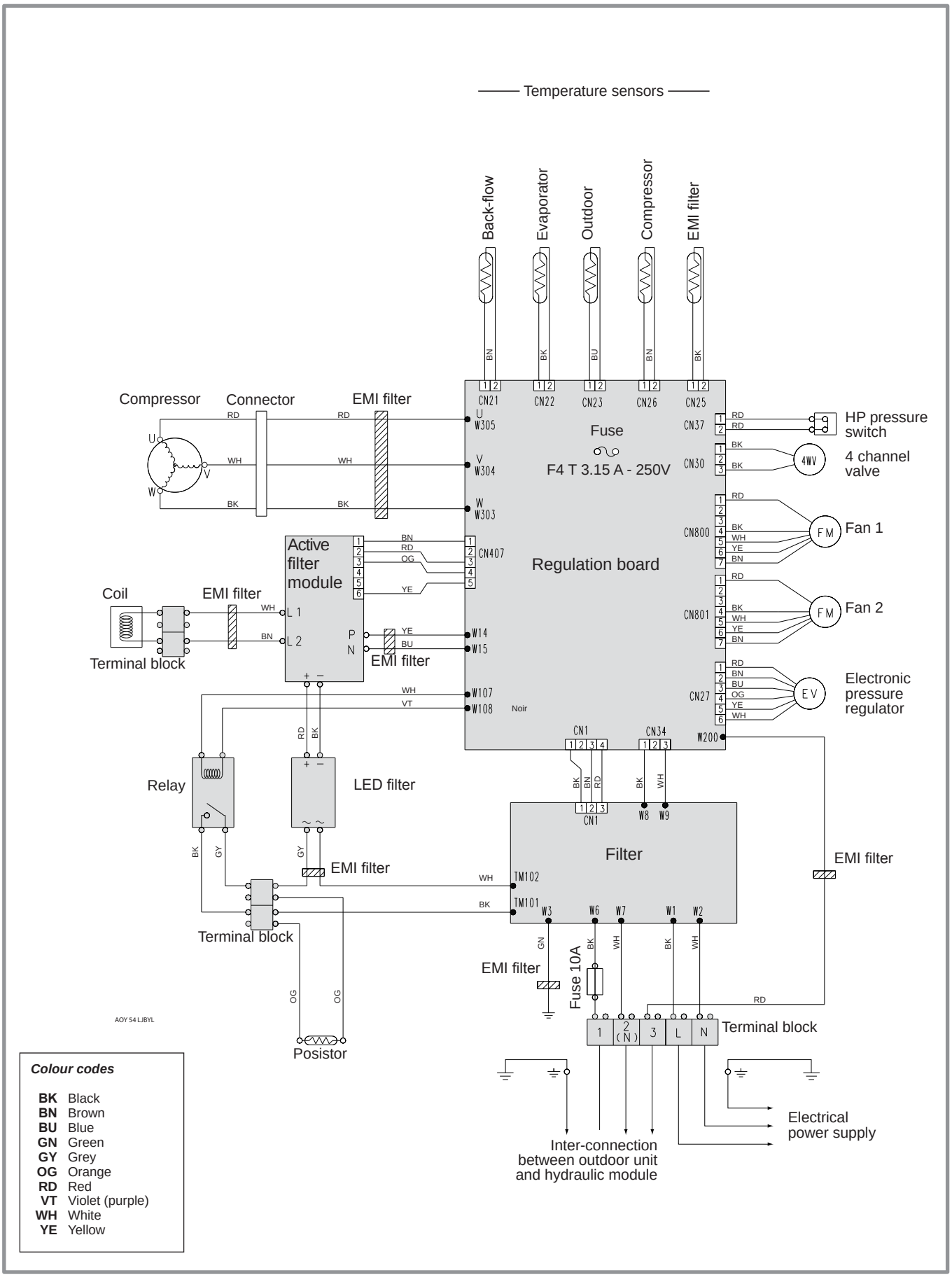



*figure 61 - Outdoor unit electrical cabling (alféa hybrid duo gas 16 single phase)*

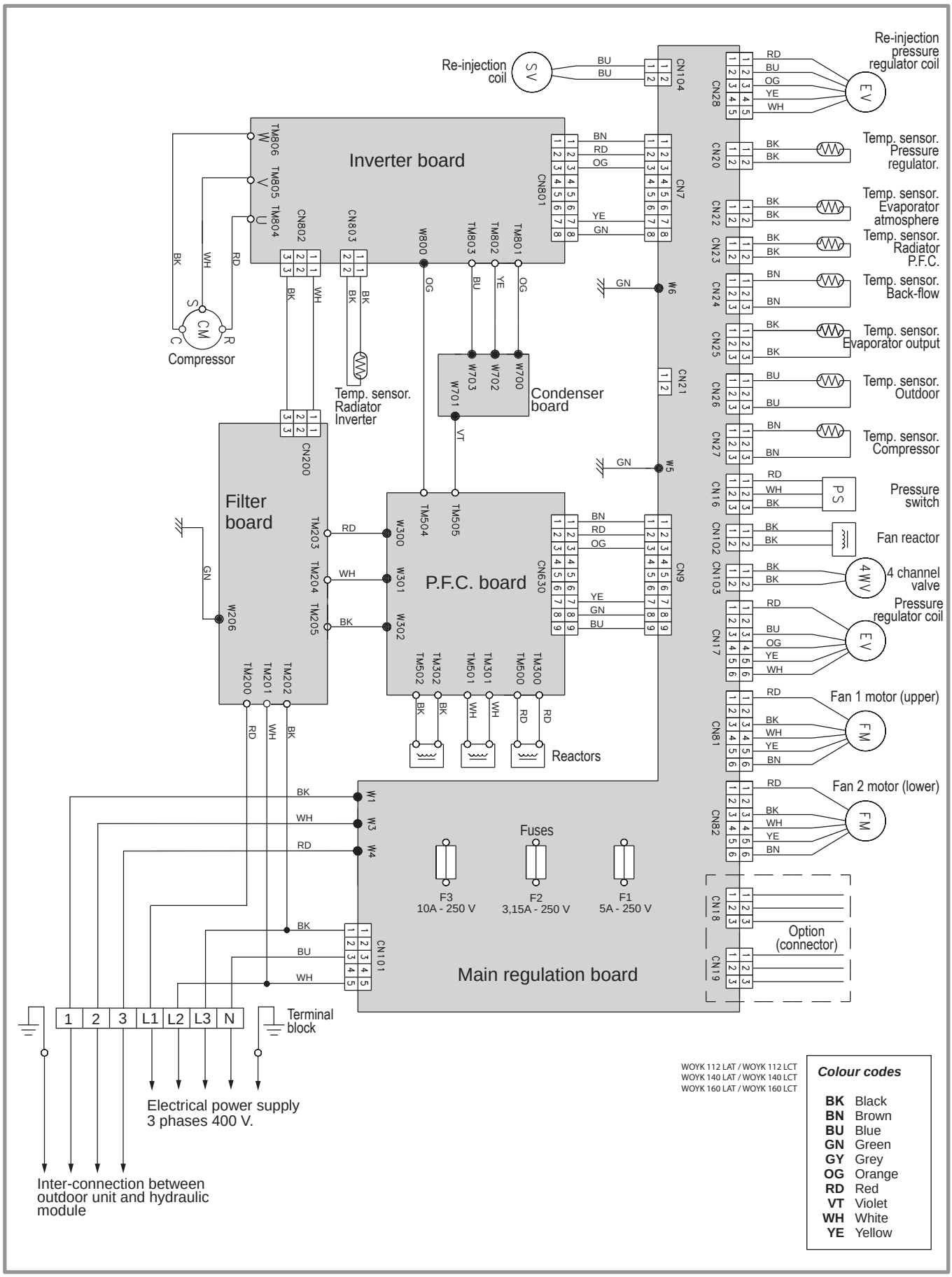



*figure 62 - Outdoor unit electrical cabling (alféa hybrid duo 11, 14, 16 three phase)*

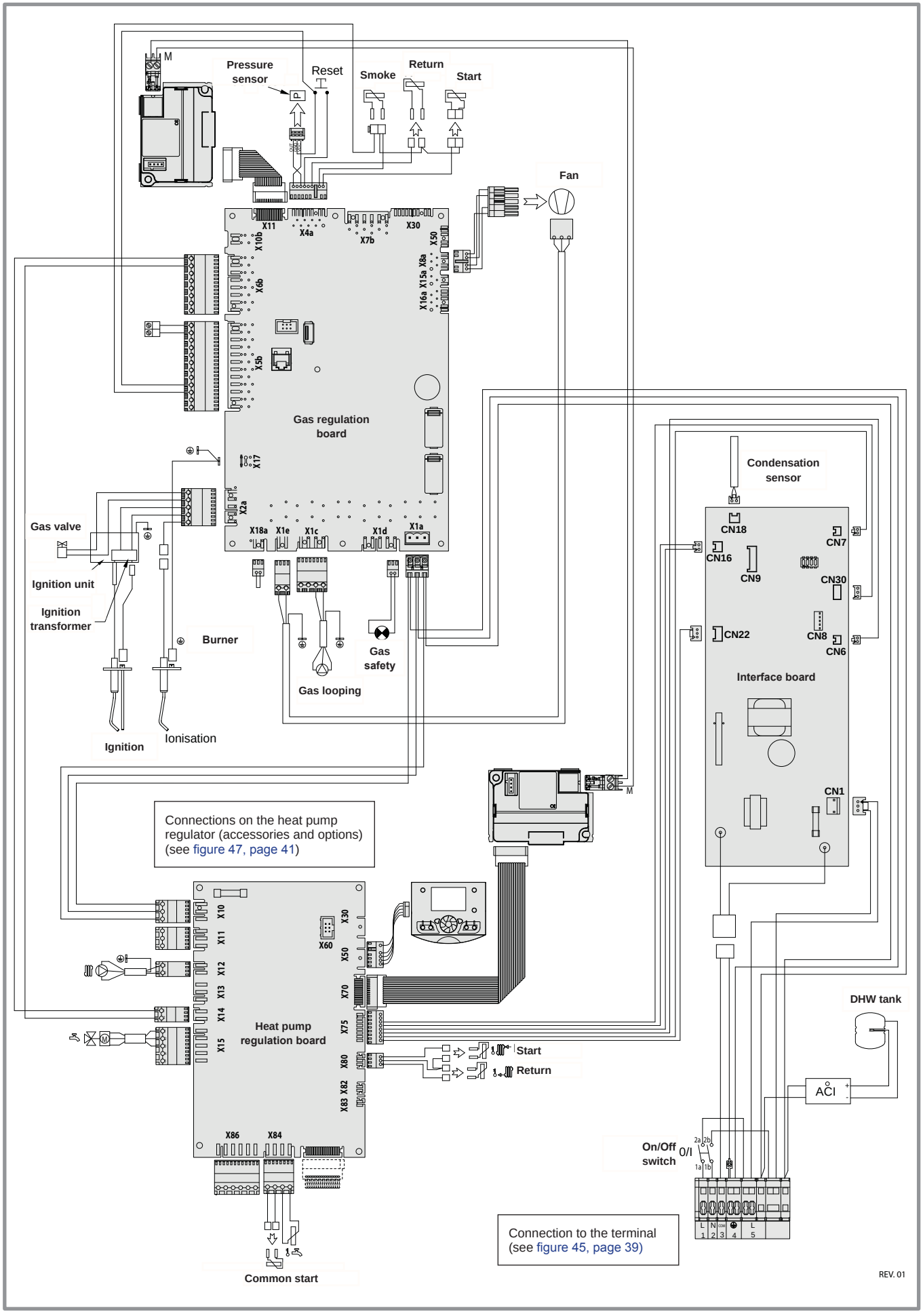



*figure 63 - Electrical wiring of hydraulic module (excluding connections by person installing)*

# 6 Fault diagnostic

Depending on whether the fault is on the outdoor unit or the hydraulic module, the fault may be advised by the digital display or the LED on the interface boards.

☞ **Before carrying out any work, ensure that the general electrical power supply is switched off.**

☞ **Antifreeze protection is not provided when the heat pump is not powered up.**

## 6.1 Fault display on the hydraulic module

The faults or breakdowns of the hydraulic module are advised on the display unit of the user interface.

The light comes on during an operating anomaly.

The display shows the symbol.

Press the button to obtain the details of the origin of the fault.

When the error is resolved, the faults are reset automatically.

The appliance may stop and restart automatically when the problem disappears.

☞ **Safety mechanism**

Certain anomalies will cause the boiler's safety mechanism to switch on (error codes 78, 128 and 133). In this case, reset the boiler by pressing the red button on the side of the control panel (see figure 64).

Note:

An anomaly on the outdoor unit may case an error signal (the "Err" light comes on).

In this case:

- the domestic hot water will be produced,
- the heating will be stopped.

Alert the heating engineer.

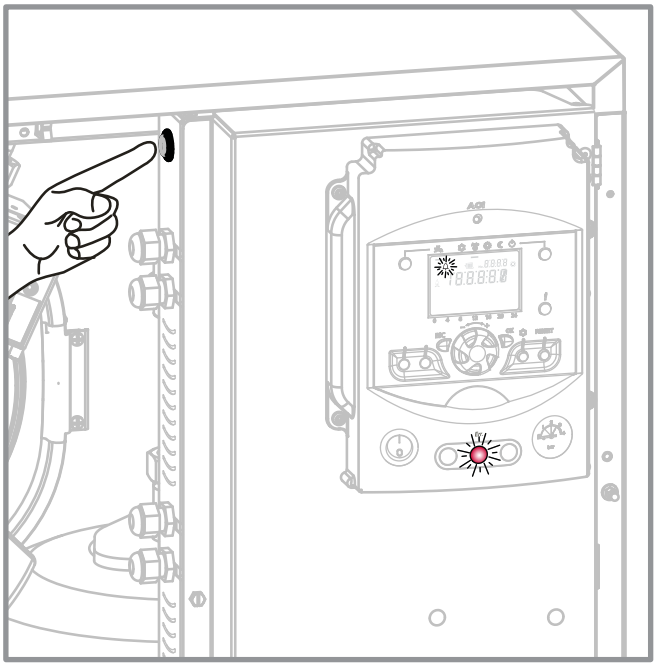


*figure 64 - Reset button*

**Hydraulic module:** Heat pump regulator faults (RVS) visible on the digital display.

| *Error number* | *Error description* | *Error position* | *Heat pump operation despite the error* |
|---|---|---|---|
| - | No connection. | The polarity of the ambient sensor has not been respected. | No |
| 10 | Outdoor sensor. | B9 | Yes |
| 33 | Heat pump start sensor temperature error. | B21 | Yes |
| 44 | Heat pump start sensor temperature error. | B71 | Yes |
| 50 | DHW temperature sensor. | B3 | Yes |
| 60 | Ambient sensor 1. | | Yes |
| 65 | Ambient sensor 2. | | Yes |
| 105 | Maintenance message. | | Yes |
| 121 | Heating circuit 1 start temperature not reached. | | Yes |
| 122 | Heating circuit 1 start temperature not reached. | | Yes |
| 127 | Anti-legionella temperature not reached. | | Yes |
| 369 | External fault (safety device) | | No |
| 370 | Outdoor unit error<br>(during a start-up phase, see § "Commissioning"). | see below and page 70 and page 71. | No |

**Hydraulic module:** Boiler regulator faults (LMS) visible on the digital display.

| *Error codes* | | *Type of anomaly* | *Probable causes* | *Action* |
|---|---|---|---|---|
| 20 | Error on the boiler sensor | Shutdown of the appliance<br>Restart when the problem disappears | Boiler sensor in short-circuit | - Check the sensor cabling<br>- Replace the sensor |
| | | | Boiler sensor disconnected or cut | |
| 26 | Error on the common start sensor | Appliance continues to operate | Common start sensor in short-circuit | - Check the sensor cabling<br>- Replace the sensor |
| | | | Common start sensor disconnected or cut | |
| 28 | Error on the smoke sensor | Appliance continues to operate | Smoke sensor in short-circuit | - Check the sensor cabling<br>- Replace the sensor |
| | | | Smoke sensor disconnected or cut | |
| 40 | Error on the boiler return sensor | Shutdown of the appliance<br>Restart when the problem disappears | Boiler return sensor in short-circuit | - Check the sensor cabling<br>- Replace the sensor |
| | | | Boiler return sensor disconnected or cut | |
| 78 | Error on the hydraulic pressure sensor | Reset necessary | Pressure sensor in short-circuit | - Check the sensor cabling<br>- Replace the sensor |
| | | | Pressure sensor disconnected (open circuit) | |
| 110 | Overheating safety function activated | Shutdown of the appliance<br>Restart when the problem disappears | X18a contact open | - Check the presence of the shunt connector |
| 117 | Water pressure too high | Appliance continues to operate | Water pressure too high or false contact | - Adjust the heating network's water pressure<br>- Check the sensor cabling |
| 118 | Water pressure too low | Appliance continues to operate | Water pressure <0.8 bars or false contact | |
| 119 | Min water pressure safety function activated | Shutdown of the appliance<br>Restart when the problem disappears | Water pressure <0.5 bars or false contact | |
| 128 | Flame goes out during operation | Reset necessary | The ionisation current is low | - Check the ionisation electrode<br>- Check the gas supply pressure<br>- Check the combustion<br>- Make sure that the boiler's burnt gas circuit is leakproof |
| 129 | Poor air supply | Shutdown of the appliance<br>Restart when the problem disappears | The fan speed is not adapted to the operation | - Check the fan cabling<br>- Check the fan |
| 130 | Smoke temperature too high | Shutdown of the appliance<br>Restart when the problem disappears | | - Check the gas exchanger<br>- Check the smoke sensor |
| 133 | Flame does not appear after the safety time expires | Reset necessary | | - Check the electrodes<br>- Check the gas supply<br>- Check the 230 V line |
| 160 | Fan speed not adapted | Shutdown of the appliance<br>Restart when the problem disappears | The fan speed is not adapted to the operation | - Check the fan speed regulation cable<br>- Check the fan<br>- Check the smoke evacuation pipe<br>- Check the air intake pipe |

**Hydraulic module**: Flashing LED visible on the 3 in 1 interface board.

| ***Error text*** | | ***Error description*** |
|---|---|---|
| ***LED 2 (green)*** | ***LED 1 (red)*** | |
| 1 Flash | 1 Flash | Error on communication between the hydraulic module and the outdoor unit. |
| 4 Flashes | 1 Flash | Connection error between the hydraulic module and the outdoor unit. |
| 4 Flashes | 2 Flashes | Hydraulic module exchanger temperature sensor error. |
| 6 Flashes | 3 Flashes | Inverter error. |
| 6 Flashes | 4 Flashes | Active filter error.<br>P.F.C. error. |
| 7 Flashes | 1 Flash | Discharge thermistor temperature sensor error. |
| 7 Flashes | 2 Flashes | Error on compressor temperature sensor. |
| 7 Flashes | 3 Flashes | Error on exchanger temperature sensor (output).<br>Error on exchanger temperature sensor (centre). |
| 7 Flashes | 4 Flashes | Error on outdoor temperature sensor. |
| 7 Flashes | 7 Flashes | Error on radiator temperature sensor (inverter).<br>Error on radiator temperature sensor (P.F.C.). |
| 7 Flashes | 8 Flashes | Error on pressure regulator temperature sensor. |
| 8 Flashes | 4 Flashes | Error on compressor current. |
| 8 Flashes | 6 Flashes | Error on pressure switch sensor.<br>Error on pressure sensor. |
| 9 Flashes | 4 Flashes | Current sensor error. |
| 9 Flashes | 5 Flashes | Compressor rotor position error detection.<br>Error on compressor start up. |
| 9 Flashes | 7 Flashes | Outdoor unit fan error. |
| 10 Flashes | 1 Flashes | Discharge thermistor protection. |
| 10 Flashes | 3 Flashes | Compressor temperature protection. |
| 10 Flashes | 5 Flashes | Abnormal low pressure. |
| Continuous flashing (1 sec lit/1 sec extinguished). | | Pump down operation. |
| Permanently lit. | Stop | Deicing. |

## 6.2 Faults displayed on the outdoor unit single phase model

To access the electronic board, the front panel (RH side) must be removed from the outdoor unit.

The faults are coded by the flashes of the LED.

**Outdoor unit, AOYA30LBTL model (alféa hybrid duo gas 10 single phase model).**

| *Diode display* | *Element with error* |
|---|---|
| 0.1 s lit and 0.1 s extinguished | Temperature sensor defective (see hydraulic module). |
| 0.5 s lit and 0.5 s extinguished | IPM board defective. |
| 2 s lit and 2 s extinguished | Electric current circuit breaker error. |
| 5 s lit and 5 s extinguished | Defective fan motor. |
| 0.1 s lit and 2 s extinguished | Position of the compressor rotor not detected. |
| 5 s lit and 0.1 s extinguished | ACPTM board defective. |
| Permanently lit. | Abnormal discharge thermistor temperature. |

**Outdoor unit, AOYA45LBTL model (alféa hybrid duo gas 13 single phase model).**
**Outdoor unit, AOYA54LJBYL model (alféa hybrid duo gas 16 single phase model).**

| *Diode display* | *Element with error* |
|---|---|
| 1 Flash | "Hydraulic module - outdoor unit" transmission error. |
| 2 Flashes | Faulty discharge thermistor temperature sensor. |
| 3 Flashes | Faulty evaporator temperature sensor. |
| 4 Flashes | Faulty outdoor temperature sensor. |
| 5 Flashes (alféa hybrid duo 13 model) | Faulty evaporator environment temperature sensor. |
| 6 Flashes (alféa hybrid duo 13 model) | Abnormal discharge thermistor temperature. |
| 7 Flashes | Faulty compressor temperature sensor. |
| 8 Flashes | Faulty radiator temperature sensor. |
| 9 Flashes | Faulty high pressure switch. |
| 10 Flashes (alféa hybrid duo 13 model) | Abnormal compressor temperature. |
| 12 Flashes | IPM board defective. |
| 13 Flashes | Position of the compressor rotor not detected. |
| 14 Flashes | The compressor does not work. |
| 15 Flashes | Defective upper fan motor. |
| 16 Flashes | Defective lower fan motor. |
| 5 s lit and 1 s extinguished | Safety |
| 1 s lit and 1 s extinguished (alféa hybrid duo 13 model) | Drained |
| Permanently lit. | No error. |

## 6.3 Faults displayed on the outdoor unit three phase model

To access the electronic board, the front panel (RH side) must be removed from the outdoor unit.

The faults are coded by the flashes of the LED.

When an error occurs:

The "ERROR" diode (2) flashes.

Press the "ENTER" (SW4) button once

The "ERROR" (2) LED flashes several times depending on the type of error (see table below).

**Outdoor unit:**

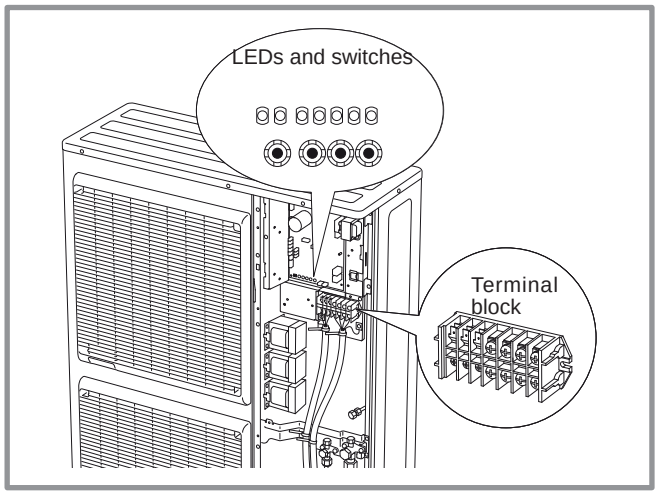



*figure 65 - Position of the switches and LEDs of the outdoor unit.*

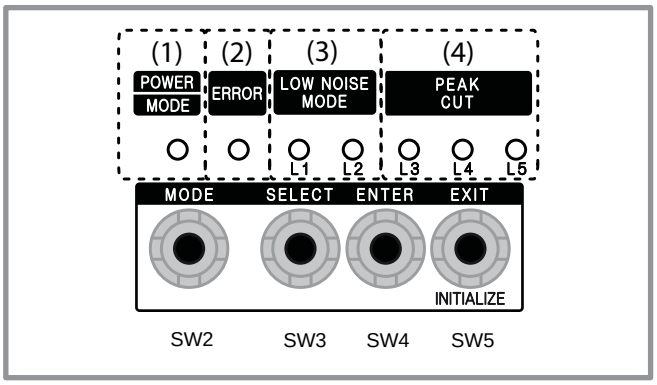



*figure 66 - Outdoor unit display*

**Outdoor unit, model WOYK112LAT (alféa hybrid duo gas 11 three phase model).**
**Outdoor unit, model WOYK140LAT (alféa hybrid duo gas 14 three phase model).**
**Outdoor unit, model WOYK160LAT (alféa hybrid duo gas 16 three phase model).**

| *Diode display* | *Error description* |
|---|---|
| 1 Flash | Error on series communication return. |
| 2 Flashes | Discharge thermistor temperature sensor error. |
| 3 Flashes | Error on pressure switch sensor. |
| 4 Flashes | Error on exchanger temperature sensor. |
| 5 Flashes | Error on exchanger temperature sensor. |
| 6 Flashes | Error on pressure regulator temperature sensor. |
| 7 Flashes | Error on outdoor temperature sensor. |
| 8 Flashes | Error on compressor temperature sensor. |
| 9 Flashes | Error on radiator temperature sensor inverter. |
| 10 Flashes | Error on radiator temperature sensor P.F.C. |
| 11 Flashes | Discharge thermistor protection (permanent stop). |
| 12 Flashes | Discharge thermistor protection (permanent stop). |
| 13 Flashes | Current sensor error (permanent stop). |
| 14 Flashes | Detection error for the position of the compressor rotor (permanent stop). |
| 15 Flashes | Compressor start error (permanent stop). |
| 16 Flashes | Error on fan 1 motor (permanent stop). |
| 17 Flashes | Error on fan 2 motor (permanent stop). |
| 18 Flashes | Inverter error. |
| 19 Flashes | P.F.C. error. |
| 20 Flashes | Abnormal low pressure. |
| 21 Flashes | Connection error with the hydraulic module. |
| 22 Flashes | Hydraulic module anomaly. |

## 6.4 Display information

The Info button calls up various information.

Depending on the appliance type, the configuration and the state of operation, certain information lines may not be available.

- Error messages possible in the error code list (see table, page 67).
- Maintenance messages possible in the maintenance code list.
- Special operation messages.
- Status messages (see below).

| *Message* | *Explanation* |
|---|---|
| Compr 1 EN | Heat pump operating without specific phase. |
| Released, evapor. PRÊT | Heat pump stopped by modulation (0% request) in a cycle. |
| No request | Heat pump stopped. |
| Minimum active compr. stop time | Time during which the heat pump is kept shut down from the stoppage (anti short cycle). |
| Lim. Max stop T° | Heat pump stopped as the max thermodynamic temperature is reached. |

- Miscellaneous information (see below).

| *Designation* | *Line* |
|---|---|
| Current drying value. | - |
| Current drying day. | - |
| Drying days completed. | - |
| State of heat pump. | 8006 |
| State of additional generator. | 8022 |
| DHW state. | 8003 |
| State of swimming pool. | 8011 |
| State of heating circuit 1. | 8000 |
| State of heating circuit 2. | 8001 |
| State of cooling circuit 1. | 8004 |
| Outdoor temperature. | 8700 |
| Ambient temperature 1 | 8740 |
| Ambient value 1. | |
| Start temperature 1. | 8743 |
| Start value 1. | |
| Ambient temperature 2 | 8770 |
| Ambient value 2. | |
| Start temperature 2. | 8773 |
| Start value 2. | |
| DHW temperature. | 8830 |
| Heat pump return temperature. | 8410 |
| Heat pump value (start) | |
| Heat pump start temperature. | 8412 |
| Heat pump ref. value (start). | |
| Swimming pool temperature. | 8900 |
| Swimming pool value (temperature). | |
| Minimum stop time remaining comp.1. | - |
| Minimum EN (on) time remaining comp.1. | |

# 7 Servicing of the installation

Before carrying out any work, ensure that the general electrical power supply is switched off.

The boiler must be serviced regularly to maintain high its output. Depending on the operating conditions, the servicing operation is to be carried out once or twice a year.

## 7.1 Servicing of the gas heat exchanger

(see figure 67).

- Switch off the electrical power supply to the appliance.
- Close the gas supply valve.
- Remove the front panel of the heat pump.

**Dismantling the chamber door:**

- Disconnect the gas unit from the gas supply.
- Disconnect the fan connectors.
- Remove the gas igniter.
- Disconnect the electrode cables and the earth cable.
- Pull out the adaptor sheath (1 collar) on the fan.
- Loosen the chamber door nuts.
- Remove the assembly.

☞ **Make sure that you do not apply any impact to the electrodes and the burner.**

- Clean the exchanger's tubular wiring using a synthetic brush.
- Clean the combustion chamber.
- Remove the cleaning residue that has built up in the combustion chamber.
- Remove the end piece from the fan and clean the dust from the fan. If there is a heavy build up of dust, clean the turbine. Do not forget to replace the O ring between the end piece and the fan.
- Brush the burner grills gently if necessary.
- Check the spacing and position of the electrodes (figure 68).
- Refit all of the parts correctly.
- **Make sure that the boiler's burnt gas circuit is leakproof.**
- Check that the connectors are correctly tightened.
- Open the gas valve, drain the pipes and check the seal upstream of the gas unit.

## 7.2 Checking the hydraulic circuit

☞ **Caution, if you need to fill the circuit frequently you must look for any leaks.**
**If you need to fill up and reset the pressure, check the type of fluid used initially.**

Recommended filling pressure: between 1 and 2 bars (the exact filling pressure is determined according to the installation's manometric head).

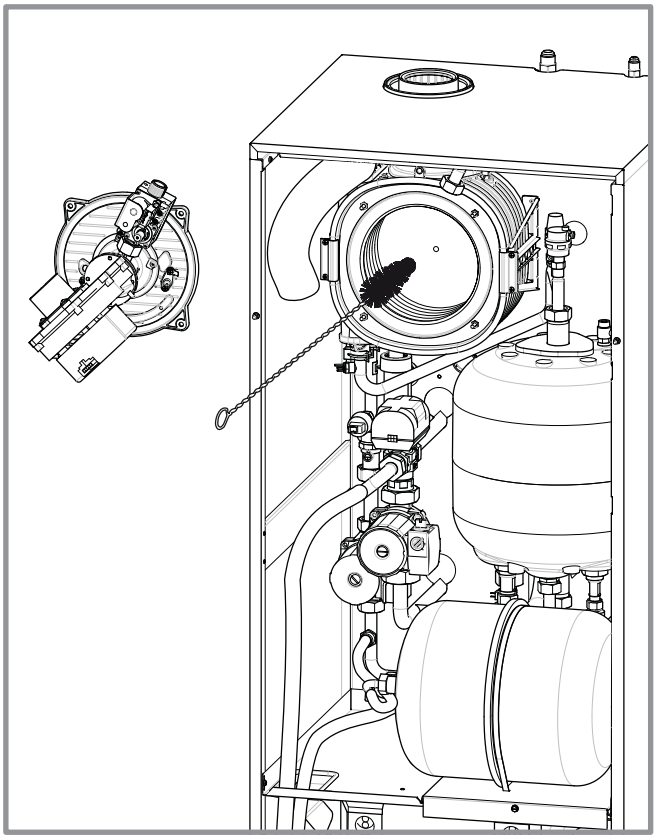


*figure 67 - Access to the combustion chamber*

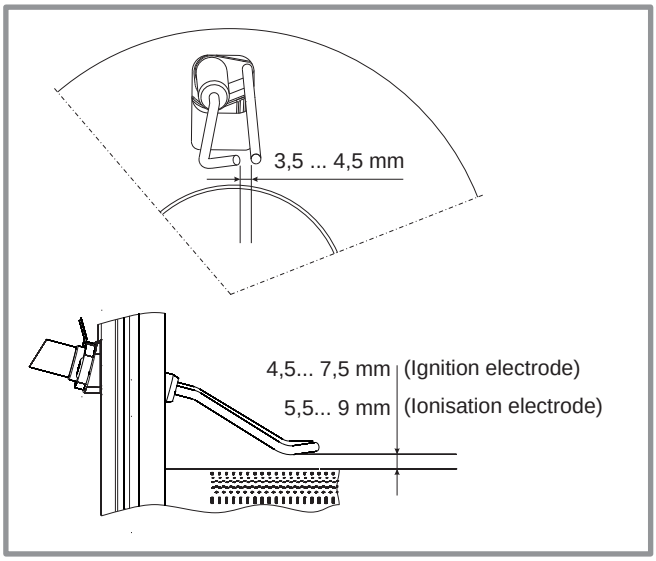



*figure 68 - Setting the electrodes*

Each year.

- Check the expansion circuit pressure (pre-inflation of 1 bar) and the correct operation of the safety valve.
- Check the safety unit on the domestic cold water inlet. Run it according to the manufacturer's instructions.
- Check the disconnector.
- Check the correct operation of the directional valve.

## 7.3 Servicing the evacuation pipe

The suction pipe (or the chimney) must be checked and cleaned regularly by a specialist (once a year).

- Check that the suction pipe is not obstructed.
- Check that the condensate evacuation is not blocked. Remove the siphon and rinse it in clean water.

**Warning: The condensates are acid:**

Wear acid-resistance gloves and goggles during maintenance.

## 7.4 Servicing the tank

The tank must be serviced once a year (the frequency may vary according to the hardness of the water).

### 7.4.1 Draining the hot water tank

- Remove the front panel of the heat pump.
- Close the cold water inlet on the hot water tank.
- Open a hot water tap and open the hot water tank drainage valve (item **1**).

### 7.4.2 Descaling

- Drain the hot water tank.
- Disconnect the ACI and remove the inspection hatch (item **2**).
- Descale the exchanger to preserve its performances.
- Remove any scale deposits that may have accumulated in the tank. It is preferable to leave the scale that has clung to the sides of the tank: it forms a protective layer.
- Carefully remove any scale deposits on the pocket. Do not use any metal objects or chemical or abrasive products.

• Change the inspection hatch gasket after each tank inspection.

☞ **Do not forget to reconnect the ACI.**

## 7.5 Checking the outdoor unit

- Remove any dust from the exchanger making sure you do not damage the blades.
- Correct the wings using a comb.
- Check that there is nothing hindering the air flow.
- Check the fan.
- Check that the condensate evacuation is not blocked.

• **Checking the refrigerating circuit:**

When the refrigerating fluid is heavier than 2 kg, you must have the refrigerating circuit checked every year by a company that meets current legal requirements.

- Check that there are no leaks (connectors, valves, etc.).

## 7.6 Checking the electrical circuit

- Check the connections and retighten if necessary.
- Check the condition of the cabling and plates.
- ACI light: In normal operation, the light flashes (item **3**).

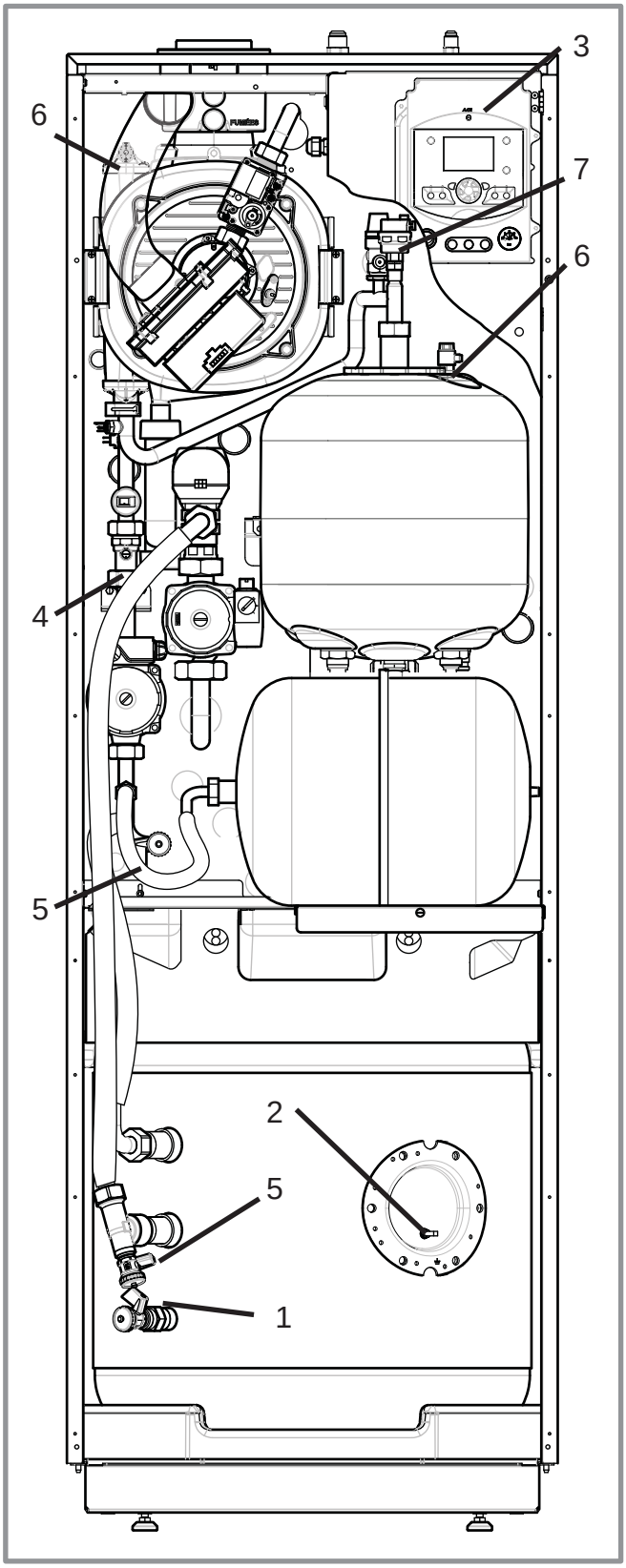



*figure 69 - Draining of the hydraulic module and/or hot water tank*

## 7.7 Checking the combustion parameters

Refer to para. "3.3 Starting the gas generator to check the combustion", page 43.

# 8 Maintenance

## 8.1 Draining the hydraulic module

- Remove the front panel of the heat pump.
- Set the directional valve to intermediate position.
- Deactivate the non-return valve (item **4,** figure 69).
- Open the drainage valves (item **5**).
- Open the manual drains (item **6**) and the auto drain of the hydraulic module (item **7**).
- Open the installation's drain(s).

## 8.2 Directional valve

Channel AB: Output to the circulator.

Channel A open: Return from the DHW tank.

Channel B open: Return from the heating circuit.

## 8.3 ACI check

Check the polarity.

Check the voltage: As the appliance is powered up, the voltage value must be positive and be between + 0 and + 6.5 V in direct current.

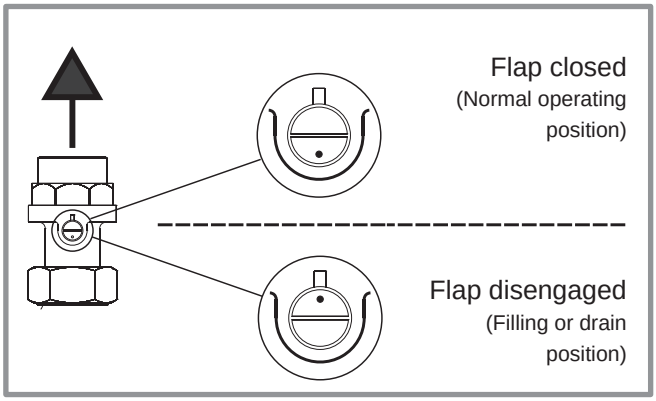



*figure 71 - Non-return valve*

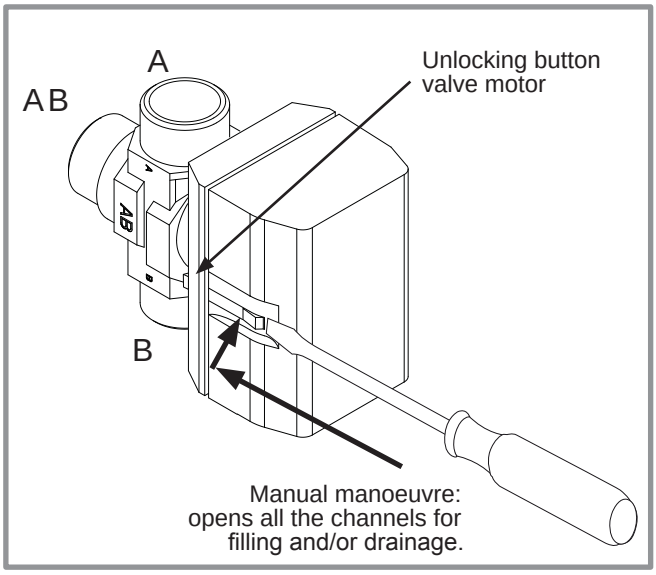
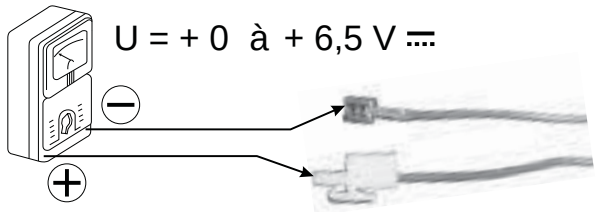



*figure 70 - Directional valve intermediate position*

**ACI power supply check**

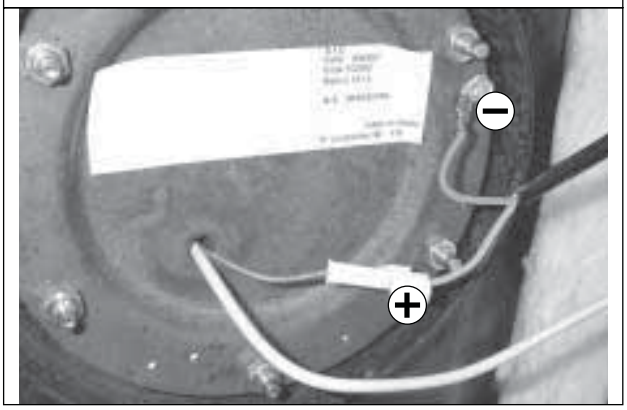



**ACI connection:**

**The ⊖ to the tank mass**

**The ⊕ to the electrode connector**

**Connection**



# 9 Values to be given to the user

Explain to the user the operation of the installation (heating and hot water temperature settings), especially the ambient sensor functions and the programmes that are accessible via the user interface.

Emphasize that under-floor heating has considerable inertia and that consequently the settings need to be progressive.

Also explain to the user how to check the heating circuit is filled.

# 10 Start-up procedure

Before switching on the hydraulic module:

- Check the electrical cabling.
- Check that the refrigeration circuit is filled with gas.
- Check the hydraulic circuit's pressure (1 to 2 bars), check that the heat pump is drained, along with the rest of the installation.
- Make sure that ALL DIP SW are OFF before starting up.

## 10.1 Commissioning assistance "check list"

### 10.1.1 Before starting

**• Visual inspections**

| Outdoor unit (see § "2.4 Installing the outdoor unit", page 16). | OK | Non conforming | |
|---|---|---|---|
| Position and attachments, condensate evacuation. | | | |
| Distances to obstacles respected. | | | |

**• Hydraulic inspections**

| Hydraulic module (see § "2.5 Installing the hydraulic module", page 19). | OK | Non conforming | Value |
|---|---|---|---|
| Connections of pipes, flaps and pumps (heating circuit, DHW). | | | |
| Installation water volume (expansion tank capacity adapted?). | | | |
| No leaks. | | | |
| Primary and gas release network pressure | | | |

**• Combustion product evacuation connection**

| (see § "2.6, page 20 to "2.8, page 21). | OK | Non conforming | Value |
|---|---|---|---|
| Leakproofing of the different pipes and the terminal. | | | |
| Respect for the max lengths and regulatory distances (figure 19, 20, 21, 22 and 23 - page 20 to page 24) | | | |

**• Refrigeration connections and checks**

| (see § "2.9 Refrigerant connections", page 25 and "2.10 Filling the installation with gas", page 28). | OK | Non conforming | |
|---|---|---|---|
| Refrigerant circuits control (Sealing respected, no dust and moisture). | | | |
| Connections between units (pipe length, flare tightening torque...). | | | |
| Installation of HP, LP pressure switches on "Gas" line (large pipe). | | | |
| Evacuation compulsory. | | | |
| Seal test with nitrogen (~ 10 bar). | | | |
| Refrig valve opening on outdoor unit. | | | |
| Refrid fluid filling for the hydraulic module and pipes. | | | |

**• Electrical checks**

| Outdoor unit (see § "2.15.3 Overall view of the electrical connections", page 35). | OK | Non conforming | Value |
|---|---|---|---|
| 230 V or 400 V general power supply (depending on model). | | | |
| Protection by calibrated circuit breaker. | | | |
| Cable section. | | | |
| Earth connection. | | | |

| Hydraulic module (see § "2.15.7 Electrical connections on the hydraulic module side" page 38). | OK | Non conforming | |
|---|---|---|---|
| Link with the outdoor unit (L, N, Earth or 3L + Earth). | | | |
| Connection of the different sensors (position and connections). | | | |

**• Propane gas checks**

| Propane connection (see § "2.14 Connection of the fuel supply", page 33). | OK | Non conforming | Value |
|---|---|---|---|
| Connectors fully tightened, no leaks upstream of the gas valve. | | | |
| Gas pressure on network = 37 mbar. | | | |

### 10.1.2 Start-up

#### • Starting

| (see § "3.2 Commissioning the heat pump", page 42). | OK | Non conforming | |
|---|---|---|---|
| Push in the installation's general circuit breaker (outdoor unit power supply)<br>2 hours before the tests => Compressor preheating. | | | |
| Push in the on/off switch => Few seconds' initialisation. | | | |
| Operation of the heating circulator. | | | |
| The outdoor unit starts after 4 min. | | | |
| Configure Time, Date and Heating circuit, DHW hourly programmes if different from the default values. | | | |
| Configure the hydraulic circuit (parameter 5700): Preset **10**. | | | |
| Set the heating slope (720 and 1020). | | | |
| Adjust the max start value (741 and 1041). | | | |

#### • Checks on the outdoor unit

| | OK | Non conforming | Value |
|---|---|---|---|
| Operation of the fans, compressor. | | | |
| Intensity measurement. | | | |
| After a few minutes, measure the difference in air T°. | | | |
| Condensation and evaporation pressure / temperature check. | | | |

#### • Checks on the hydraulic module

| | OK | Non conforming | Value |
|---|---|---|---|
| After 15 minutes' operation. | | | |
| Difference in primary water T°. | | | |
| DHW priority (directional valve switchover). | | | |
| Heating operation, boiler reading, etc.. | | | |

#### • Regulation

| (see " § 3.3 Configuration of the sensor/central ambient unit"3.5, page 45 and/or 3.6, page 45). | OK | Non conforming | |
|---|---|---|---|
| Configuration, operations, checks. | | | |
| Carry out the hourly programming for the heating periods (500 to 516 / 520 to 536). | | | |
| Set the values for the heating circuits if different from the default values (710 - 714 ; 1010-1014). | | | |
| Set the DHW values (1610-1612), if different from the default values. | | | |
| Value display. | | | |
| Usage explanations. | | | |

#### • Checks on the gas exchanger

| (see § "3.3 Starting the gas generator to check the combustion", page 43). | OK | Non conforming | Value |
|---|---|---|---|
| Combustion check at 100 % (10 % < $CO_2$ < 11 %). | | | |
| Combustion check at 0 % (9.5 % < $CO_2$ < 10.5 %). | | | |

**The heat pump is ready to operate!**

## 10.2 Configuration file

| Parameter | Designation | Setting | Menus |
|---|---|---|---|
| **Prior settings** | | | |
| 20 | language | | inter. Use |
| 1 | hour / minuts | | time and date |
| 2 | day / month | | time and date |
| 3 | year | | time and date |
| 5700 | installation config. | | configuration |
| **Heating circuit No. 1 (with 2 circuit option) the least hot (e.g.: underfloor)** | | | |
| 710 | comfort value | | Heating circuit 1 setting |
| 712 | reduced setting | | Heating circuit 1 setting |
| 720 | Water logic slope | | Heating circuit 1 setting |
| 741 | Max. start value | | Heating circuit 1 setting |
| 750 | ambience influence | | Heating circuit 1 setting |
| 790 / 791 | start / stop optimis. | / | Heating circuit 1 setting |
| 834 | Servomotor travel time | | Heating circuit 1 setting |
| 850 / 851 | floor drying | / | Heating circuit 1 setting |
| **Heating circuit No. 2 (1 circuit) = the hottest (e.g.: radiators)** | | | |
| 1010 | comfort value | | Heating circuit 2 setting |
| 1012 | reduced setting | | Heating circuit 2 setting |
| 1020 | Water logic slope | | Heating circuit 2 setting |
| 1041 | Max. start value | | Heating circuit 2 setting |
| 1050 | ambience influence | | Heating circuit 2 setting |
| 1090 / 1091 | start / stop optimis. | / | Heating circuit 2 setting |
| 1134 | Servomotor travel time | | Heating circuit 2 setting |
| 1150 / 1151 | floor drying | / | Heating circuit 2 setting |
| **Domestic hot water** | | | |
| 1610 | comfort DHW T° value | | DHW |
| 1612 | reduced DHW T° value | | DHW |
| 1620 | Liberation of DHW | | DHW |
| 1640 to 1642 | Anti-legionella cycle | | DHW |

| Parameter | Designation | Setting | Menus |
|---|---|---|---|
| **Boiler reading** | | | |
| 3700 | On author. ext. T° | | addit. gener. |
| **Miscellaneous** | | | |
| 6420 | H33 input function | 1 | configuration |
| 6100 | ext. T° sensor correct. | | configuration |
| 6120 | antifreeze on/off | | configuration |
| 6205 | parameter reset | | configuration |
| 6220 | software version | | configuration |
| 6711 | Heat pump reset | | error |
| **Faults (if a fault appears, press the "Info" button)** | | | |
| No. 10 | outdoor sensor | | |
| No. 33 | Initial T° sensor | | |
| No. 44 | Return T° sensor | | |
| No. 50 | DHW T° sensor | | |
| No. 60 | Ambient sensor 1 | | |
| No. 65 | Ambient sensor 2 | | |
| No. 105 | maintenance message | | |
| No. 121 | Initial T° Heating circuit 1 not reached | | |
| No. 122 | Initial T° Heating circuit 2 not reached | | |
| No. 127 | Anti-legio T° not reached | | |
| No. 369 | external fault (EX3) | | |
| No. 370 | outdoor unit connection error | | |
| 6711 | Heat pump reset | | error |
| **Heat pump** | | | |
| 2844 | Max thermodynamic oper. T° | | heat pump |
| **Outdoor unit faults (see § "6.2, page 70 or "6.3, page 71)** | | | |

## 10.3 Technical commissioning instructions

| Site | | Installer | |
|---|---|---|---|

| Outdoor unit | Serial No. | | Hydraulic module | Serial No. | |
|---|---|---|---|---|---|
| | Model | | | Model | |

| Type of refrigerating fluid | | | Refrigerating fluid load | kg |
|---|---|---|---|---|

| Checks | | | | Voltages and intensities in operation on the outdoor unit | | | |
|---|---|---|---|---|---|---|---|
| Location distances respected | | | | L/N or L1/N | V | | |
| Condensate evacuation OK | | | | L2/N | V | | |
| Electrical connections/connection tightening | | | | L/T or L1/T | V | | |
| No refrigerating gas leaks (Appliance identification No: ) | | | | L3/N | V | | |
| Refrigerating link installation ok (length m) | | | | N/T | V | | |
| **Reading in HOT operation** | | | | | | | |
| Compressor discharge thermistor T° | | °C | | Icomp | A | | |
| Fluid lineT° | | °C | | | | | |
| Condensation T° | HP = bar | °C | } | Under-cooling | | °C | |
| Tank water output T° | | °C | } | ΔT° condensation | | °C | |
| Tank water inlet T° | | °C | } | ΔT° secondary | | °C | |
| Evaporation T° | BP = bar | °C | | | | | |
| Aspiration T° | | °C | } | Overheating | | °C | |
| Battery air inlet T° | | °C | } | ΔT° evaporation | | °C | |
| Battery air output T° | | °C | } | ΔT° battery | | °C | |

| Hydraulic network on hydraulic module | | | | | |
|---|---|---|---|---|---|
| Secondary network | Underfloor heating | | Circulator make | Type | |
| | LV radiators | | | | |
| | Fan coils | | | | |
| Domestic hot water; tank type | | | | | |
| Secondary network water volume estimate | | L | | | |

| Gas exchanger combustion check | | |
|---|---|---|
| Propane gas supply pressure | mbar | |
| CO / $CO_2$ max (at 100%) | ppm / % | |
| CO / $CO_2$ max (at 0%) | ppm / % | |

| Options & accessories: | | | | | |
|---|---|---|---|---|---|
| Ambient sensor position ok | | | Ambient sensor T37 | | |
| 2 circuit kit | | | Ambient sensor T55 | | |
| | | | Central ambient unit T75 | | |
| | | | Central ambient unit T78 | | |
| | | | Details | | |

| Regulation configuration | | |
|---|---|---|
| Type of configuration | | |
| Essential parameters | | |

CE

1312 BQ 4180

Complies with:

- Gas directives 2009/142/EC and Efficiency Directive 92/42/CEE, standard EN625, EN297 (Chimney flued) EN483 (Fan flued) and EN 677.
- Low voltage directive 2006/95/CE and 93/68/CEE.
- Electromagnetic compatibility Diretive 2004/108/CE and 93/68/CEE.
- Directive 2006/42/EC Machinery.
- Directive for pressurised equipment 97/23/EC.

This appliance also conforms to: :

- decree No. 92-1271 (and its modifications) relating to certain refrigeration fluids used in refrigeration and air conditioning equipment.
- Regulation 842/2006 of the European parliament on certain fluorinated greenhouse gases.
- the standards relating to the product and the testing methods used: Air-conditioners, refrigeration unit s and heat pumps with compressor driven by electric motor for heating and refrigeration in 14511-1, 14511-2, 14511-3, and 14511-4.
- to standard XP ENV 12102: Air-conditioners, heat pumps and dehumidifiers with compressor driven by electric motor. Measurement of airborne noise. Determination of acoustic power level.

This appliance is marked with this symbol. This means that electrical and electronic products shall not be mixed with general household waste.
European Community countries (*), Norway, Iceland Liechtenstein should have a dedicated collection system for these products.
Do not try to dismantle the system yourself as this could have harmful effects on your health and on the environment.
The dismantling and treatment of refrigerant, oil and other parts must be done by a qualified installer in accordance with relevant local and national regulations.
This appliance must be treated at a specialized treatment facility for re-use, recycling and other forms of recovery and shall not be disposed of in the municipal waste stream.
Please contact the installer or local authority for more information.

* subject to the national law of each member state

*Date of commissioning:*

*Contact details of your heating engineer or After Sales service.*

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**Société Industrielle de Chauffage**
SATC - BP 64 - 59660 MERVILLE - FRANCE

RC Dunkirk - Siren 440 555 886
The specifications of this equipment may be modified without prior instructions - Non contractual document